

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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STRAUMANN USA, LLC,  
Petitioner,

v.

SMART DENTURE CONVERSIONS, LLC,  
Patent Owner.

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IPR2025-00956  
Patent 11,937,992

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**PATENT OWNER'S RESPONSE**

March 13, 2026

## **TABLE OF CONTENTS**

|                                                                                                                                          |    |
|------------------------------------------------------------------------------------------------------------------------------------------|----|
| TABLE OF AUTHORITIES.....                                                                                                                | 3  |
| LIST OF PATENT OWNER’S EXHIBITS .....                                                                                                    | 3  |
| I. INTRODUCTION .....                                                                                                                    | 14 |
| II. LEGAL STANDARD .....                                                                                                                 | 18 |
| III. PRIORITY DATE.....                                                                                                                  | 18 |
| IV. PERSON OF ORDINARY SKILL IN THE ART .....                                                                                            | 19 |
| A. Petitioner’s Proposed Level of Skill Disqualifies Both Inventors of<br>the ’992 Patent as POSAs .....                                 | 20 |
| B. Petitioner’s Proposed Scope of the Relevant Art is too Narrow and<br>Petitioner’s Expert Agrees .....                                 | 21 |
| V. THE BOARD’S IMPLICIT CLAIM CONSTRUCTION IS<br>WRONG .....                                                                             | 23 |
| A. The Board Construed the Claim Limitations.....                                                                                        | 23 |
| B. The Board’s Implicit Claim Construction Is Incorrect.....                                                                             | 24 |
| VI. GROUNDS 1-3 FAIL BECAUSE THE WRITTEN<br>DESCRIPTIONS FULLY SUPPORT THE ’992 PATENT<br>CLAIMS, MEANING KOFFORD IS NOT PRIOR ART ..... | 28 |
| A. The Priority Applications’ Written Description Fully Supports<br>Independent Claims 1 and 9 .....                                     | 29 |
| 1. The Priority Applications Disclose Temporary Screws with<br>Asymmetric Threads .....                                                  | 35 |
| 2. The Priority Applications Disclose Slotted Temporary Screws with<br>Symmetric Threads.....                                            | 41 |
| 3. The Priority Applications Disclose a Temporary Screw With an<br>Interference Fit .....                                                | 44 |
| B. These Disclosures Adequately Disclose the Claimed Genus Under<br><i>Ariad</i> .....                                                   | 46 |
| C. Petitioner’s Evidence and Arguments Otherwise Are Unsupported and<br>Internally Inconsistent.....                                     | 48 |

|                                                                                                                                                               |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| D. The Claims are Entitled to the Priority Applications' Priority Date<br>Even if the Priority Applications Only Disclosed Figure 75 and<br>Nothing More..... | 59 |
| E. The '992 Patent's Dependent Claims Are Likewise Supported by<br>Adequate Written Description .....                                                         | 61 |
| F. The Petition's Enablement Argument Fails .....                                                                                                             | 63 |
| VII. GROUNDS 4-6 OF THE PETITION FAIL TO SHOW ANY<br>CLAIMS WERE OBVIOUS .....                                                                                | 64 |
| A. Combining These References Would Not Meet All Limitations of the<br>Claimed Invention.....                                                                 | 65 |
| B. A POSA Would Not Have Been Motivated to Combine the Prior Art to<br>Arrive at the Invention.....                                                           | 69 |
| C. The Petition Relies on Impermissible Hindsight to Arrive at the<br>Claimed Invention.....                                                                  | 72 |
| D. Objective Evidence of Non-Obviousness Confirms That a POSA<br>Would Not Have Been Motivated to Combine the Prior Art as<br>Petitioner Suggests.....        | 73 |
| 1. Long-Felt but Unsatisfied Need .....                                                                                                                       | 74 |
| 2. Copying by Others.....                                                                                                                                     | 75 |
| 3. Industry Praise.....                                                                                                                                       | 75 |
| VIII. CONCLUSION.....                                                                                                                                         | 78 |
| CERTIFICATE OF COMPLIANCE .....                                                                                                                               | 79 |
| CERTIFICATE OF SERVICE .....                                                                                                                                  | 80 |

## TABLE OF AUTHORITIES

|                                                                                     | Page(s)       |
|-------------------------------------------------------------------------------------|---------------|
| <b>Cases</b>                                                                        |               |
| <i>Amerigen Pharms. v. UCB Pharma</i> ,<br>913 F.3d 1076 (Fed. Cir. 2019) .....     | 70            |
| <i>Ariad Pharm. v. Eli Lilly</i> ,<br>598 F.3d 1336 (Fed. Cir. 2010) .....          | <i>Passim</i> |
| <i>Apple v. Samsung</i> ,<br>839 F.3d 1034 (Fed. Cir. 2016) .....                   | 73            |
| <i>BASF v. Commonwealth Sci.</i> ,<br>28 F.4th 1247 (Fed. Cir. 2022) .....          | 38            |
| <i>Belden v. Berk-Tek</i> ,<br>805 F.3d 1064 (Fed. Cir. 2015) .....                 | 64            |
| <i>Bilstad v. Wakalopulos</i> ,<br>386 F.3d 1116 (Fed. Cir. 2004).....              | 30, 32, 48    |
| <i>Bos. Sci. v. Johnson &amp; Johnson</i> ,<br>647 F.3d 1353 (Fed. Cir. 2011) ..... | 51            |
| <i>Capon v. Eshhar</i> ,<br>418 F.3d 1349 (Fed. Cir. 2005) .....                    | 32            |
| <i>Cheese Sys. v. Tera</i> ,<br><i>Pack</i> , 725 F.3d 1341 (Fed. Cir. 2013) .....  | 70            |
| <i>Curtiss-Wright v. Velan</i> ,<br>438 F.3d 1374 (Fed. Cir. 2006) .....            | 26            |
| <i>D Three Enters. v. Sunmodo</i> ,<br>890 F.3d 1042 (Fed. Cir. 2018) .....         | 53            |
| <i>Daiichi Sankyo v. Apotex</i> ,<br>501 F.3d 1254 (Fed. Cir. 2007) .....           | 20, 23        |

|                                                                                              |               |
|----------------------------------------------------------------------------------------------|---------------|
| <i>Days Corp. v. Lippert Components</i> ,<br>2019 WL 3072306 (N.D. Ind. July 15, 2019) ..... | 30            |
| <i>Dynamic Drinkware v. Nat’l Graphics</i> ,<br>800 F.3d 1375 (Fed. Cir. 2015) .....         | 18, 29        |
| <i>Eli Lilly v. Teva Pharms.</i> ,<br>2020 WL 806932 (PTAB Feb. 18, 2020) .....              | 64            |
| <i>Endo Pharms. v. Actavis</i> ,<br>922 F.3d 1365 (Fed. Cir. 2019) .....                     | 63            |
| <i>Epistar v. ITC</i> ,<br>566 F.3d 1321 (Fed. Cir. 2009) .....                              | 31            |
| <i>Ethicon Endo-Surgery v. U.S. Surgical</i> ,<br>93 F.3d 1572 (Fed. Cir. 1996) .....        | 55            |
| <i>Ex parte Bush</i> ,<br>2012 WL 3863280 (BPAI Aug. 29, 2012) .....                         | 47, 48        |
| <i>Ex parte Kojer</i> ,<br>2023 WL 4652884 (PTAB June 28, 2023) .....                        | 49            |
| <i>Exela Pharm. v. Eton Pharms.</i> ,<br>620 F. Supp. 3d 108 (D. Del. 2022) .....            | 73            |
| <i>Fox Factory v. SRAM</i> ,<br>2017 WL 1242973 (PTAB Apr. 3, 2017) .....                    | 56            |
| <i>Gillette v. Sphere USA</i> ,<br>2023 WL 6367741 (PTAB Sept. 19, 2023) .....               | <i>Passim</i> |
| <i>GlaxoSmithKline v. Banner Pharmacaps</i> ,<br>744 F.3d 725 (Fed. Cir. 2014) .....         | 26            |
| <i>Google v. EcoFactor</i> ,<br>92 F.4th 1049 (Fed. Cir. 2024) .....                         | 23, 24, 27    |

|                                                                                                                  |               |
|------------------------------------------------------------------------------------------------------------------|---------------|
| <i>Henny Penny v. Frymaster</i> ,<br>938 F.3d 1324 (Fed. Cir. 2019) .....                                        | 69            |
| <i>HTC v. Cellular Comms. Equip.</i> ,<br>877 F.3d 1361 (Fed. Cir. 2017) .....                                   | 23, 24        |
| <i>Hynix Semiconductor v. Rambus</i> ,<br>645 F.3d 1336 (Fed. Cir. 2011) .....                                   | 31            |
| <i>In re Mahurkar</i> ,<br>831 F. Supp. 1354 (N.D. Ill. 1993), <i>aff'd</i> , 71 F.3d 1573 (Fed. Cir. 1995)..... | 74            |
| <i>In re Wands</i> ,<br>858 F.2d 731 (Fed. Cir. 1988) .....                                                      | 63            |
| <i>Innovention Toys v. MGA Entm't</i> ,<br>637 F.3d 1314 (Fed. Cir. 2011) .....                                  | 19            |
| <i>Intelligent Bio-Sys. v. Illumina Cambridge</i> ,<br>821 F.3d 1359 (Fed. Cir. 2016) .....                      | 63            |
| <i>Interconnect Planning v. Feil</i> ,<br>774 F.2d 1132 (Fed. Cir. 1985) .....                                   | 71            |
| <i>Juno Therapeutics v. Kite Pharma</i> ,<br>10 F.4th 1330 (Fed. Cir. 2021) .....                                | <i>Passim</i> |
| <i>Kloster Speedsteel v. Crucible</i> ,<br>793 F.2d 1565 (Fed. Cir. 1986) .....                                  | 19            |
| <i>KSR v. Teleflex</i> ,<br>550 U.S. 398 (2007) .....                                                            | 70            |
| <i>LizardTech v. Earth Res. Mapping</i> ,<br>424 F.3d 1336 (Fed. Cir. 2005) .....                                | 30., 63       |
| <i>L'Oréal v. Liqwd</i> ,<br>2018 WL 3871776 (PTAB Aug. 10, 2018) .....                                          | 47, 48        |

|                                                                                             |            |
|---------------------------------------------------------------------------------------------|------------|
| <i>Martek Biosciscis. v. Nutrinova</i> ,<br>579 F.3d 1363 (Fed. Cir. 2009) .....            | 49         |
| <i>McCoy v. Heal Systems</i> ,<br>850 F. App'x. 785 (Fed. Cir. 2021) .....                  | 19, 20, 22 |
| <i>Medtronic v. Teleflex Innovations</i> ,<br>69 F.4th 1341 (Fed. Cir. 2023) .....          | 49, 55, 56 |
| <i>Orexo AB v. Actavis Elizabeth</i> ,<br>903 F.3d 1265 (Fed. Cir. 2018) .....              | 70         |
| <i>Oxford Nanopore</i> ,<br>996 F.3d 1342 (Fed. Cir. 2021) .....                            | 63         |
| <i>Panduit v. Dennison Mfg.</i> ,<br>810 F.2d 1561 (Fed. Cir. 1987) .....                   | 64         |
| <i>Philips v. AWH</i> ,<br>415 F.3d 1303 (Fed. Cir. 2005) .....                             | 26         |
| <i>Plantronics v. Aliph</i> ,<br>724 F.3d 1343 (Fed. Cir. 2013) .....                       | 68         |
| <i>Polaris v. Arctic Cat</i> ,<br>882 F.3d 1056 (Fed. Cir. 2018) .....                      | 70         |
| <i>Precision Planting v. Deere &amp; Co.</i> ,<br>2020 WL 7378831 (PTAB Dec. 15, 2020)..... | 18         |
| <i>Procter &amp; Gamble v. Teva Pharms.</i> ,<br>566 F.3d 989 (Fed. Cir. 2009) .....        | 73         |
| <i>Reiffin v. Microsoft</i> ,<br>214 F.3d 1342 (Fed. Cir. 2000) .....                       | 30         |
| <i>Rexnord Corp. v. Laitram Corp.</i> ,<br>274 F.3d 1336 (Fed. Cir. 2001) .....             | 49         |

|                                                                                             |                |
|---------------------------------------------------------------------------------------------|----------------|
| <i>SDC v. Straumann USA</i> ,<br>759 F. Supp. 3d 555 (D. Del. 2024) .....                   | 28             |
| <i>Sega v. Uniloc</i> ,<br>2016 WL 932971 (PTAB Mar. 10, 2016).....                         | 18             |
| <i>SSI Techs. v. Dongguan Zhengyang</i> ,<br>2024 WL 2383268 (W.D. Wis. May 23, 2024) ..... | 30             |
| <i>TQ Delta v. CISCO</i> ,<br>942 F.3d 1352 (Fed. Cir. 2019) .....                          | 70             |
| <i>Trading Techs. v. eSpeed</i> ,<br>595 F.3d 1340 (Fed. Cir. 2010) .....                   | 26, 55         |
| <i>Tronzo v. Biomet</i> ,<br>156 F.3d 1154 (Fed. Cir. 1998) .....                           | 29, 52, 53, 56 |
| <i>Tvngo v. LG</i> ,<br>861 F. App'x 453 (Fed. Cir. 2021) .....                             | 26             |
| <i>Union Carbide v. Am. Can.</i> ,<br>724 F.2d 1567 (Fed. Cir. 1984) .....                  | 19             |
| <b>Statutes</b>                                                                             |                |
| 35 U.S.C. § 112 .....                                                                       | 48             |
| 35 U.S.C. § 112(f) .....                                                                    | 60             |
| <b>Rules</b>                                                                                |                |
| Fed. R. Civ. P. 12(b)(6) .....                                                              | 8              |
| <b>Regulations</b>                                                                          |                |
| 37 C.F.R. § 42.22(a)(2) .....                                                               | 63             |

**LIST OF PATENT OWNER’S EXHIBITS**

| <b>Exhibit No.</b> | <b>Description</b>                                                                                                                                                                                                                                                                                     |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                                                                                           |

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|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2011 | Smart Denture Conversions, <i>Technique Manual</i> , available at <a href="https://shorturl.at/798cX">https://shorturl.at/798cX</a>                                                           |
| 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 <a href="https://bit.ly/4un9wQl">https://bit.ly/4un9wQl</a> (last visited March 13, 2026)                                                          |
| 2025 | Facebook post by Neodent (Dec. 22, 2025), available at <a href="https://bit.ly/4sKTVbv">https://bit.ly/4sKTVbv</a> (last visited Feb. 26, 2026)                                               |
| 2026 | Instagram post by Neodent Global, available at <a href="https://www.instagram.com/reel/DAYZvWktWjU/?hl=en">https://www.instagram.com/reel/DAYZvWktWjU/?hl=en</a> (last visited Feb. 26, 2026) |

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|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2027 | Neodent, <i>NeoConvert™: Transforming smiles</i> , available at <a href="https://www.straumann.com/neodent/us/en/professionals/products-and-solutions/treatment-concepts/neoconvert.html">https://www.straumann.com/neodent/us/en/professionals/products-and-solutions/treatment-concepts/neoconvert.html</a> |
| 2028 | <i>Aspen Dental and ClearChoice Anchor Strong Growth, Innovation Across the Aspen Group's Multi-Brand Healthcare Portfolio</i> , AspenDental, <a href="https://bit.ly/4u1Eg98">https://bit.ly/4u1Eg98</a> (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                                                                                    |
| Berrevoets    | U.S. Patent No. 6,517,543 B1 (Feb. 11, 2003)                                                                                                             |
| Brunski Decl. | Declaration of John B. Brunski, Ph.D., Ex. 1002                                                                                                          |
| Companion PGR | <i>Straumann USA, LLC v. Smart Denture Conversions, LLC</i> , PGR2025-00054                                                                              |
| Derey         | W.O. Patent Publication No. 2013/030839 A1 (Mar. 7, 2013), Ex. 1008                                                                                      |
| Ebi           | U.S. Patent Publication No. 2004/0180308 A1 (Sept. 16, 2004)                                                                                             |
| Ex.           | Exhibit                                                                                                                                                  |
| 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 |
| IDS           | Information Disclosure Statement(s)                                                                                                                      |
| IPR           | <i>Inter partes</i> review                                                                                                                               |
| Johnson       | U.S. Patent No. 3,115,804 (Dec. 31, 1963)                                                                                                                |
| Kofford       | U.S. Patent No. 11,311,354 (Apr. 26, 2022), Ex. 1013                                                                                                     |
| Lannan        | U.S. Patent Publication No. 2008/0206709 A1 (Aug. 28, 2008)                                                                                              |
| Lazzara       | U.S. Patent No. 4,850,870 (Jul. 25, 1989)                                                                                                                |
| Neuhengen     | U.S. Patent Publication No. 2002/0094255 A1 (Jul. 18, 2002)                                                                                              |
| Nino          | U.S. Patent No. 7,938,046 (May 10, 2011), Ex. 1020                                                                                                       |

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|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parallel Litigation   | <i>Smart Denture Conversions, LLC v. Straumann USA, LLC</i> , No. 1:24-cv-00507-JCB (D. Del.)                                                                                                |
| Patent Owner          | Respondent Smart Denture Conversions, LLC                                                                                                                                                    |
| Petitioner            | Straumann USA, LLC                                                                                                                                                                           |
| PGR                   | Post-grant review                                                                                                                                                                            |
| Poovey                | U.S. Patent Publication No. 2016/0045290 A1 (Feb. 18, 2016), Ex. 1005                                                                                                                        |
| POSA                  | Person of ordinary skill in the art                                                                                                                                                          |
| Priority Applications | '942 Application, '402 Application, '082 Application, and '361 Application (collectively)                                                                                                    |
| Product Talk          | Product Talk, Season 18 Episode 3, <i>Neodent® NeoConvert™ - Drew Phillips, DMD</i> (July 1, 2024), available at <a href="https://bit.ly/4b7PQa6">https://bit.ly/4b7PQa6</a> .               |
| PTAB                  | Patent Trial and Appeal Board                                                                                                                                                                |
| PTO                   | U.S. Patent and Trademark Office                                                                                                                                                             |
| Ruetschi              | DE 3808238 A1 (Oct. 27, 1988), Exs. 1021 & 1022                                                                                                                                              |
| SDC                   | Patent Owner Smart Denture Conversions, LLC                                                                                                                                                  |
| Staniszewski          | U.S. Patent No. 9,568,037 B2 (Feb. 14, 2017)                                                                                                                                                 |
| Straumann             | Petitioner Straumann USA, LLC                                                                                                                                                                |
| Sutter (1996)         | International Patent Application No. WO 96/29019 (Sept. 26, 1996)                                                                                                                            |
| Sutter (2001)         | U.S. Patent No. 6,332,777 B1 (Dec. 25, 2001)                                                                                                                                                 |
| Voices                | Voices from the Bench, Episode 280, <i>Getting Smart About Conversions with Dr. Brandon Kofford</i> (Aug. 7, 2023), available at <a href="https://bit.ly/4ubXwRu">https://bit.ly/4ubXwRu</a> |
| Wade                  | U.S. Patent No. 5,904,483 (May 18, 1999)                                                                                                                                                     |

|                  |                                                                  |
|------------------|------------------------------------------------------------------|
| '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

The '992 Patent provides improved systems and methods for aligning dental implants using a temporary screw-in fastener.<sup>1</sup> Specifically, the patented invention ensures the alignment of dental implants and painless removal of temporary fasteners, thereby improving clinical efficiency, implant-to-prosthesis alignment accuracy, and patient comfort. It does so with a “temporary alignment system and method for holding a dental coping to an implant abutment *using the same threads in the abutment* that are used for definitive attachment.” ’992 Patent, Abstract (emphasis added).

The inventors explain “[t]he disclosed temporary fasteners initially orient and hold a coping against an abutment with a force along the same axis as the semi-definitive screw.” *Id.* Then, all embodiments permit “[t]he aligned coping” to be “picked-up in a closed-tray impression process *without unscrewing the temporary fastener.*” *Id.* (emphasis added). After thorough prosecutions, the PTO issued Kofford, the ’992 Patent, and the ’781 Patent, all of which claimed subject matter disclosed in the Priority Applications.

Patent Owner began selling its revolutionary Smart Denture Conversions products in 2019 and experienced explosive growth because of their significant

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<sup>1</sup> A Table of Abbreviations is provided at pages 11-13 for the Board’s convenience.

advantages over traditional open- and closed-tray techniques, including their stability, strength, convenience and accuracy. Ex. 2024, 3-4. In fact, they experienced such dramatic success that Petitioner, the U.S. arm of The Straumann Group—a \$17 billion international conglomerate—took notice. Worrying about its bleeding sales, Petitioner commissioned a Brazilian affiliate to develop a knock-off alternative, NeoConvert, for Petitioner to sell alongside its products starting in early 2024. Ex. 1028, ¶ 5. After Patent Owner sued Petitioner for infringement in the Parallel Litigation, Petitioner sought to invalidate Patent Owner’s intellectual property via this IPR and the Companion PGR. Exs. 2001-02.

Petitioner falls short of carrying its IPR burden to show that the ’992 Patent claims are invalid. The Board should reject the Petition so that the Parallel Litigation may proceed. None of the Grounds shows that any challenged claim is invalid.

Petitioner argues claims 1-12 are anticipated by Kofford. But Kofford is not prior art; it is a pre-grant publication to which the ’992 Patent properly claims priority. The ’992 Patent’s claims are fully supported by the Priority Applications. Their written description shows that the inventors possessed each claim limitation when they filed the Priority Applications. Because Kofford is not prior art, Petitioner cannot prove anticipation by Kofford. Petitioner’s obviousness challenges to claims 4, 7 and 12 (Grounds 2-3) fail for the same reason.

Petitioner also argues the claims are obvious over various combinations of prior art, all of which include Bernhard, Poovey and Gracco. These arguments fail for several reasons.

*First*, no combination of prior art references shows the required claim limitation “a temporary screw ... comprising: ... ***a distal shaft portion with threads in a pattern that is shaped differently from a pattern of the threads of the definitive screw.***” ’992 Patent, 25:48-55 (emphasis added). Bernhard does not show or suggest a temporary screw. Poovey’s temporary screw has plastic threads with the same thread pattern as the threads of the fixation screw. And while Gracco (not a dental system reference) discloses self-tapping screws with well-known thread patterns screwed into (and pulled out of) a synthetic bone material (not a dental abutment), it does not disclose either a temporary or a definitive screw—or even two screws with different thread patterns screwed into the same female threads. Accordingly, since none of the references, alone or in combination, discloses this critical claim feature, the Petition fails to prove that any of the claims are obvious.

*Second*, no POSA would combine these references in the manner the Petition sets out. Specifically, even if a POSA could combine Bernhard and Poovey, there is no disclosed motivation to further modify the Bernhard/Poovey screw threads to an

asymmetric buttress thread using Gracco's test results. Poovey's silicone or plastic threads are already designed to be picked up using minimal force.

More importantly, even if a POSA were motivated to (1) add Poovey's temporary screw to Bernhard and then (2) substitute Gracco's asymmetric buttress thread for Poovey's temporary screw, the resulting combination would still lack the critical "different thread patterns" limitation. Bernhard only teaches a well-known definitive screw (but no temporary screw) with male threads that match the abutment's female threads. Poovey only teaches a temporary screw with the same thread pattern as the definitive screw to match the abutment's female threads. And Gracco only teaches a self-tapping screw (not a dental system) with threads that exactly match the female threads of the synthetic bone material.

No reference discloses or suggests two screws with different thread patterns, screwed into the same female threads. Petitioner's slight-of-hand seeks to distract from that fundamental shortcoming. But that critical limitation, however, would not have been obvious—it would have been inventive. That is why the Patent Examiner originally allowed the '992 Patent's claims over the prior art, including *both* Bernhard and Poovey.

The Petition impermissibly uses the challenged claims as a road map to cherry-pick incompatible elements from multiple references to try to recreate the

invention. The Board should reject this hindsight exercise and each ground of the Petition.

## **II. LEGAL STANDARD**

“Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner.” *Precision Planting v. Deere & Co.*, 2020 WL 7378831, at \*1 (PTAB Dec. 15, 2020) (citing *Dynamic Drinkware v. Nat’l Graphics*, 800 F.3d 1375, 1378 (Fed. Cir. 2015)). “To prevail, Petitioner must prove unpatentability by a preponderance of the evidence.” *Id.* (citations omitted). This includes showing the applicable priority date by preponderance of the evidence. *Sega v. Uniloc*, 2016 WL 932971, at \*9 (PTAB Mar. 10, 2016).

## **III. PRIORITY DATE**

The ’992 Patent properly claims priority to the Priority Applications. ’992 Patent, [63], [60], Related U.S. Application Data (listing Priority Applications as related applications). The Board tentatively found the claims’ priority date to be June 3, 2023 because the Priority Applications allegedly lack adequate written description for the ’992 Patent claims. As explained below, however, the Priority Applications adequately support the ’992 Patent; its claims are thus at least entitled to the ’361 Application’s priority date, October 8, 2019.

#### IV. PERSON OF ORDINARY SKILL IN THE ART

“A determination of the level of skill of a POSA is a factual issue reviewed for substantial evidence and warrants reversal where the POSA standard is legally incorrect and results in a incorrect invalidity findings.” *McCoy v. Heal Systems*, 850 F. App’x. 785, 787 (Fed. Cir. 2021) (citation and emphasis omitted).

Further, it is well established that a higher level of skill favors a determination of obviousness because a more sophisticated person would find more inventions to be obvious than a layperson. *See, e.g., Innovention Toys v. MGA Entm’t*, 637 F.3d 1314, 1323 (Fed. Cir. 2011); *Kloster Speedsteel v. Crucible*, 793 F.2d 1565, 1574 (Fed. Cir. 1986); *Union Carbide v. Am. Can.*, 724 F.2d 1567, 1573 (Fed. Cir. 1984).

As the Board noted, the proposed definitions that Petitioner and Patent Owner proposed “share many consistencies.” Inst. Dec. 13. For example, Petitioner and Patent Owner agree that a POSA would have at least a bachelor’s degree in mechanical engineering or an equivalent field. Pet., 31; 1 Leinsing ¶35. The Board also noted there is “little meaningful difference” between the five years’ of experience Petitioner’s proposes and Patent Owner’s three years. Pet., 31; 1 Leinsing ¶35. Where the proposed definitions differ, however, the Board should adopt Patent Owner’s definition because Petitioner’s proposal would disqualify both inventors of the ’992 Patent as POSAs at the time of the invention.

The most important difference between these two proposed definitions is the scope of the relevant art. Petitioner proposes that a POSA's experience must deal with "dental implants and prostheses" specifically. Pet., 31. Patent Owner contends, however, that experience with non-dental products, such as bone implants, anchors, and/or screws, is equally useful. 1 Leinsing ¶35.

The Board should adopt Patent Owner's definition. A POSA is someone of *ordinary* skill, not an expert in the field; the standard is analogous to tort law's famous "reasonable person." *McCoy*, 850 F. App'x at 787–88. Relevant considerations include "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." *Daiichi Sankyo v. Apotex*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). Those considerations support Patent Owner's definition.

**A. Petitioner's Proposed Level of Skill Disqualifies Both Inventors of the '992 Patent as POSAs**

At the outset, Petitioner's definition makes little sense because it excludes the '992 Patent's own inventors. 2 Leinsing ¶52. Dr. Kofford is a dentist with no engineering degree or certifications. Mr. Rudisill has a degree in mechanical engineering but, before co-inventing the technology at issue, *no* experience with

dental products. *Id.* His prior inventions involved mechanical and electrical applications across numerous industries.

It makes sense that Mr. Rudisill's engineering expertise transferred over seamlessly; the invention is part of a broader predictable field, mechanical engineering. The invention does not primarily involve concepts specific to dental practice or medicine—rather, it involves the application of well-known mechanical principles to denture conversions. The problems a POSA encounters in this field are the same problems that arise in mechanical applications across numerous industries. 2 Leinsing ¶50. The prior art confirms these commonalities; much of it is not specific to dental applications. *Id.* Even Petitioner agrees, arguing repeatedly that this proceeding deals with “predictable technology.” Pet., 52, 59. 79-80.

**B. Petitioner's Proposed Scope of the Relevant Art is too Narrow and Petitioner's Expert Agrees**

Brunski's deposition further illustrates that a POSA need not have dentistry-specific experience.

Brunski touts his experience in “researching, consulting, and lecturing in biomaterials and biomechanics of oral and maxillofacial implants,” including “biomechanical problems that arise in the clinical use of dental implants.” Brunski, ¶¶8-9. Yet Brunski admitted having no direct experience with denture conversions and was only “familiar with general impression taking.” Brunski Dep., 13:2-3. His closest work was a project “25 years ago” designing a “snap on mechanism” to

permanently attach prostheses to implants—but even that “didn’t really have anything to do with impression taking.” *Id.*, 9:15-10:15.

Brunski also admitted that he “was not specifically involved in that space” (denture conversions) except “to the extent there’s some overlap between dentistry and impression methods and stuff I do.” *Id.*, 18:6-16. Indeed, Brunski could not name specific products used in traditional conversion techniques as of 2000, hadn’t thought about long-term changes in the open-tray or closed-tray techniques before, and never even heard of SDC or NeoConvert before this engagement.

*Id.*, 15:17-16:4, 17:17-21, 17:24-18:5, 18:20-19:9. Moreover, though his declaration asserted that Nobel Biocare (Bernhard’s applicant) was “a major company in the industry, and its advancements in the field are well-known, and would have been noteworthy to a POSA,” Brunski, ¶68, Brunski had no idea whether the Bernhard and Poovey’s technologies had ever been commercialized, Brunski Dep., 134:11-13, 179:17-19. In short, nothing about Brunski’s experience with dental implants gave him special insight into the mechanical fastener technology at issue here.

Because this technology belongs to the broader mechanical arts, therefore, a POSA need not have dentistry-specific experience. Just like Mr. Rudisill did here by consulting Dr. Kofford, a POSA can consult a dentist as necessary. *See McCoy*, 850 F. App’x at 788 (a POSA’s reliance on another expert can be appropriate “if in

the relevant art the POSA routinely would rely on such expert assistance”). Brunski testified that his own experience includes similar divisions of labor, describing work with a colleague who “is more of a bone expert” in which “the two of us together gave input” to “the design team.” Brunski Dep., 11:3-13.

The relevant considerations set out in *Daiichi Sankyo* support Patent Owner. Where Petitioner’s proposal diverges, the Board should therefore adopt Patent Owner’s definition.

## **V. THE BOARD’S IMPLICIT CLAIM CONSTRUCTION IS WRONG**

Petitioner led the Board astray by quietly furnishing an erroneous claim construction, which the Institution Decision relied on to erroneously limit the claims’ scope. Inst. Dec., 22-33. Specifically, the Board’s discussion of written-description support for what it calls the *different thread* and *axial force* limitations requires implicit constructions of claims 1 and 9 that are incorrect. *Id.*

### **A. The Board Construed the Claim Limitations**

Though the Institution Decision purports not to construe any claim limitations, it did so implicitly. *Id.*, 13-14. When the outcome of claim analysis “establishes the scope (e.g., boundaries) and meaning of the patented subject matter, the court (or the Board) has most likely construed the term.” *Google v. EcoFactor*, 92 F.4th 1049, 1055 (Fed. Cir. 2024); *see also HTC v. Cellular Comms. Equip.*, 877 F.3d 1361, 1367 (Fed. Cir. 2017) (same).

Because the Institution Decision purported to establish the claims’ scope and meaning, it was based upon implicit claim construction. The Institution Decision focused on an isolated bit of claim language describing the temporary screw’s threads, saying that “the threads of the claimed temporary screw need only be ‘different’ in pattern or profile compared to the definitive screw.” Inst. Dec., 28. “This is a broad concept,” the Board reasoned. *Id.* That implicit construction, in turn, undergirded the Ground 1 analysis tentatively finding inadequate support in the Priority Applications for claim 1. *Id.*, 30 (contrasting the “broad” “claim limitation” with the specifications’ “narrow and specific” disclosures).

#### **B. The Board’s Implicit Claim Construction Is Incorrect**

The Board thus implicitly construed the claims—and, moreover, did so incorrectly in several ways. “[C]onstruing claim terms” requires “first look[ing] to, and primarily rely[ing] on, the intrinsic evidence, including the claims themselves, the specification, and the prosecution history of the patent, which is usually dispositive.” *Google*, 92 F.4th at 1058. “A patentee ‘is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its scope.’” *Id.*

*First*, the implicit construction accounted for only *part* of the claim language relevant to the temporary screw’s threading. It fails to consider other relevant “wherein” portions of claims 1 and 9. Specifically, claim 1 requires that these

“different” threads must enable (1) the temporary screw to be “rotatable in a distal direction ... to engage[] the threads of the implant abutment to a predetermined torque” and (2) “an axial force in a proximal direction ... [to] release[] the coping and the temporary screw from the implant abutment.” ’992 Patent, 25:56-64. Claim 9 requires the temporary screw’s “male threading profile” be “different” from the definitive screw’s, such that the temporary screw’s “male threading ... enter[s] the implant abutment and rotatably engage[s] the female threading of the implant abutment to a predetermined pick-up processing torque,” and then “release[s] from threads of the female threading of the implant abutment” with an axial pick-up force. *Id.*, 26:51-53, 61-67. “These functional limitations are tightly connected to the geometry of the temporary screw threads.” 2 Leinsing ¶117. “That language defines the claimed genus by two properties” (at minimum) *in addition* to the different-thread property the Institution Decision recognized. *GlaxoSmithKline v. Banner Pharmacaps*, 744 F.3d 725, 730 (Fed. Cir. 2014).

By determining that “the threads of the claimed temporary screw need only be ‘different’ in pattern or profile compared to the definitive screw,” therefore, the Board erred. Inst. Dec., 27. The Institution Decision’s implicit construction does not account for critical additional limitations.

**Second**, the Board’s construction ignores the claim differentiation of dependent claims 3 and 8. Dependent claims provide intrinsic evidence that inform

the meaning of a more broadly recited claim from which it depends. *Tvngo v. LG*, 861 F. App'x 453, 460 (Fed. Cir. 2021) (applying *Philips v. AWH*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc)). The “other claims of the patent in question” are “valuable sources of enlightenment as to the meaning of a claim term.” *Id.* For example, patent law recognizes “the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim.” *Curtiss-Wright v. Velan*, 438 F.3d 1374, 1380 (Fed. Cir. 2006).

The Board erred in failing to consider these additional claims. Dependent claim 3 recites “wherein the pattern of the threads of the temporary screw threading is asymmetric.” ’992 Patent, 26:7-8. Dependent claim 8 recites “wherein the distal shaft portion of the temporary screw has a hollow portion, and wherein at least a portion of the distal shaft portion is configured to deflect inwardly into the hollow portion-in response to the axial force in the proximal direction.” *Id.*, 26:29-33. Requiring claim 1’s *different thread* and *axial force release* limitations to describe only Figure 75’s split post with buttress threads renders dependent claims 3 and 8 meaningless. 2 Leinsing ¶119.

Moreover, the Board’s construction operates to “add additional limitations to claims 1 and 9, without a basis in the claim language for doing so.” 2 Leinsing ¶122. This contradicts the principle that “courts must not import limitations into the claims from the specification.” *Trading Techs. v. eSpeed*, 595

F.3d 1340, 1352 (Fed. Cir. 2010). In this way, the Board’s construction was incorrect.

*Third*, like the implicit construction in *Google*, the Institution Decision’s construction here contradicts the relevant specification. In *Google* (though the Board stated “that claim construction was unnecessary”) a limitation was construed to require inputs that were “separate and distinct components that required distinctly different input data.” 92 F.4th at 1054. The Federal Circuit reversed because the limitation was “not limited to inputs that are entirely separate and distinct.” *Id.* at 1058. To the contrary, the specification “contains no restrictive language and does not explicitly require that the claim inputs be separate.” *Id.* What’s more, the specification expressly contemplated an alternate embodiment; claim terms “normally” are not “interpret[ed] ... in a way that excludes embodiments disclosed in the specification.” *Id.*; *see also* 2 Leinsing ¶121.

The Board’s construction here, like in *Google*, contradicts the specification. The Priority Applications “contain[] no restrictive language and do[] not explicitly require” that the claims be limited this way. *Google*, 92 F.4th at 1058. And as explained below, the Priority Applications (like *Google*’s specification) expressly contemplate and disclose alternate embodiments. 2 Leinsing ¶¶129-59 (describing disclosed embodiments). The Board’s construction is incorrect for this third reason.

To sum up: the Board implicitly construed claims 1 and 9—and did so incorrectly. Freed from the incorrect construction that Petitioner puts forward, these claims do not define an overbroad genus. They are properly defined claims, just as the district court determined when it rejected Petitioner’s arguments in the Parallel Litigation that these same claims are ambiguous. *See SDC v. Straumann USA*, 759 F. Supp. 3d 555, 563 (D. Del. 2024) (finding the ’992 Patent’s claims were not indefinite and stating the wherein “rotatable” limitation “unambiguously refers to a functional capability of the temporary screw” and the “axial release” limitation also “plainly describes a capability of the temporary screw”).

**VI. GROUNDS 1-3 FAIL BECAUSE THE WRITTEN DESCRIPTIONS FULLY SUPPORT THE ’992 PATENT CLAIMS, MEANING KOFFORD IS NOT PRIOR ART**

The Board instituted this IPR in part based on an interim determination that Kofford—a parent patent, by the same inventors—might qualify as prior art to the ’992 Patent. Inst. Dec., 27-35. Grounds 1-3 of the Petition rely on Kofford as the primary reference, either as anticipating the claims or (combined with other references) making them obvious. Pet., 5-6. If Kofford is not prior art, on the other hand, Grounds 1-3 necessarily fail. 2 Leinsing ¶¶123, 162.

For precisely this reason, Grounds 1-3 fail. The Priority Applications contain adequate written description for the claims. Even a single disclosed species would be adequate to disclose the claimed genus of temporary screws in this context, and

the Priority Applications disclose at least three species. Therefore, the '992 Patent's priority date is October 8, 2019 or earlier, and Kofford (not being prior art) "cannot have anticipated any claims and cannot render any claims obvious." 2 Leinsing ¶162.

**A. The Priority Applications' Written Description Fully Supports Independent Claims 1 and 9**

The '992 Patent's claims are adequately supported by the Priority Applications. The relevant written description (1) discloses differences between the temporary screw's threading and that of the definitive screw, and (2) explains how the differences facilitate axial pull-out of the temporary screw while still allowing both screws (temporary and definitive) to screw into the same abutment. In a predictable field like the mechanical arts at issue here, nothing more is required.

"For a claim in a later-filed application to be entitled to the filing date of an earlier application ... the earlier application must comply with the written description requirement." *Tronzo v. Biomet*, 156 F.3d 1154, 1158 (Fed. Cir. 1998). The "specification of the *provisional* must 'contain a written description of the invention'" sufficient to satisfy section 112. *Dynamic*, 800 F.3d at 1378 (emphasis added). It does so as long as it "reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharm. v. Eli Lilly*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc).

This is a context-specific standard; “[w]hat is required ... ‘varies with the nature and scope of the invention at issue, and with the scientific and technologic knowledge already in existence.’” *Juno Therapeutics v. Kite Pharma*, 10 F.4th 1330, 1335 (Fed. Cir. 2021). For predictable mechanical arts,<sup>2</sup> section 112 sets a low bar. The main idea is straightforward, ensuring “that the scope of the right to exclude” matches “the scope of the inventor’s contribution.” *Reiffin v. Microsoft*, 214 F.3d 1342, 1345-46 (Fed. Cir. 2000).

Moreover, “[a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language.” *LizardTech v. Earth Res. Mapping*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). To the contrary, established law permits

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<sup>2</sup> *Bilstad v. Wakalopulos*, 386 F.3d 1116, 1126 (Fed. Cir. 2004) (describing “mechanical world” as “fairly predictable field”); *SSI Techs. v. Dongguan Zhengyang*, 2024 WL 2383268, at \*10 (W.D. Wis. May 23, 2024) (“predictable field of mechanical and electronic devices”); *Days Corp. v. Lippert Components*, 2019 WL 3072306, at \*5 (N.D. Ind. July 15, 2019) (“mechanical and electrical arts involve ‘predictable factors,’ unlike ‘arts involving unpredictable factors, such as chemistry and physiology,’ where the ‘requisite scope of enablement varies inversely with the degree of unpredictability of the factors involved’”).

patent owners to claim a broader genus of inventions relying solely on written descriptions that disclose only one or more species within it, as the Institution Decision acknowledged. *See* Inst. Dec., 31 (“it is possible for a single disclosed species to provide written description support for a claimed genus”). The description need only disclose “either a ***representative number of species*** falling within the scope of the genus or ***structural features common to the members of the genus*** so that one of skill in the art can ‘visualize or recognize’ the members of the genus.” *Juno*, 10 F.4th at 1335 (emphasis added) (quoting *Ariad*, 598 F.3d at 1350).

Often, a written description disclosing only a single species is enough to support a broader genus claim. “There is no categorical rule that a species cannot suffice to claim the genus.” *Hynix Semiconductor v. Rambus*, 645 F.3d 1336, 1352 (Fed. Cir. 2011). The “representative number of species” required to disclose a broad genus is often ***one***. *Cf. Epistar v. ITC*, 566 F.3d 1321, 1336 (Fed. Cir. 2009) (when “an invention pertains to an art where the results are predictable,” “a broad claim can be enabled by disclosure of a single embodiment”).

To be sure, in a “particular field” with more “unpredictability” like chemical or molecular engineering, “closer scrutiny of whether disclosure of a species is

sufficient to describe a genus” may be appropriate. *Bilstad*, 386 F.3d at 1125.<sup>3</sup> But as with section 112’s written-description requirement more generally, this standard is much lower in predictable arts like mechanical engineering. Here, “the lack of complexity of the relevant technology, the predictability of the mechanical arts, and the scope of the claims ... reduces the number of species that must be disclosed.” *Gillette v. Sphere USA*, 2023 WL 6367741, at \*17 (PTAB Sept. 19, 2023).

For claim 1, this means that the written description only needs to show possession of the narrow claimed genus of “temporary screw[s]” with (1) “threads in a pattern that is shaped differently from a pattern of the threads of the definitive

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<sup>3</sup> For this reason, the genus-species issue most often comes up in the life sciences, which are far less predictable than mechanical arts. *See, e.g., Juno*, 10 F.4th at 1336 (“Kite argues that the claims cover an enormous number (millions or billions of scFv candidates), only a fraction of which satisfy the functional binding limitation for any given target ....”). Requiring more disclosed species makes sense in such applications where “much of the [genus] sought to be claimed was of unknown structure,” because broad claims in those circumstances represent only “a ‘wish’ or research ‘plan,’” rather than actual possession. *Capon v. Eshhar*, 418 F.3d 1349, 1358 (Fed. Cir. 2005).

screw,” (2) designed to “engage[] the threads of the implant abutment to a predetermined torque” and (3) then “release[] the coping and the temporary screw from the implant abutment” during “pick-up processing.” ’992 Patent, 25:53-64. Similarly, for claim 9, the written description need only support the claimed genus of “temporary screw[s]” with (1) a “male threading profile that is different from” that of the “definitive screw,” (2) designed to “rotatably engage the female threading of the implant abutment” and (3) then “release from [the] threads of the female threading of the implant abutment” during pick-up processing. *Id.*, 26:52-67; *see also* 2 Leinsing ¶127.

The Priority Applications disclose **both** “a representative number of species” as well as “structural features common to the members” of the genera. *Juno*, 10 F.4th at 1335. The written descriptions provide ample material from which a POSA “can ‘visualize or recognize’ the members of the genus,” *id.*, because the claims’ “functional limitations are tightly connected to the geometry of the temporary screw threads.” 2 Leinsing ¶117.

First, the Priority Applications describe and depict definitive (or permanent) screws with standard symmetrical threading designed to engage and fill up the abutment’s female threading. This definitive screw is designed to establish a long-lasting attachment at the conclusion of the denture conversion. Figure 9 of the ’361 Application, for example, shows a definitive screw 75 with standard symmetrical

threading that matches and fills the abutment 8's symmetrical threading. Thus, the claims define the structural features of the claimed genus of temporary screws in part by reference to these definitive screws; whatever specific threading the definitive screw uses to permanently engage the abutment's female threading, the temporary screw's threading is different.

Second, the Priority Applications depict and describe abutments with female threading to which the temporary and definitive screws will both attach during the denture conversion process. "The abutments for use with the inventive concepts disclosed herein include screw threads to mount the prosthesis with copings onto the abutments." '361 Application, 70. The temporary fasteners "hold[] a dental coping to an implant abutment *using the same threads in the abutment* that are used for definitive attachment." *Id.*, 59 (emphasis added).

The '361 Application shows multiple standard abutments 8 with female threads 18. *Id.*, FIGS. 1-2, 4-6, 9-15; *id.*, FIGS. 82, 85, 88, 90 (showing abutment 60). Per the '942 Application, the "typical screw thread size" for such abutments is a standard metric thread, "m1.4 x 0.3." '942 Application, 18; *id.*, FIG. 11 ("m1.4 x 0.3 thread"). The specifications thus describe and illustrate the female abutment threading (1) with which the temporary screw must engage during insertion and (2) from which the temporary screw's threads will release during pick-up processing, as the claims describe. These structural disclosures are essential to

understanding the inventive concepts, since the temporary screw's functionality directly results from its relationship to the definitive screw's male threading and the abutment's corresponding female threading.

Finally, the Priority Applications disclose multiple embodiments of the temporary screw itself. They explicitly describe (1) temporary screws with asymmetric threads (with or without slotted posts), (2) temporary screws with symmetric threads and slotted posts, and (3) temporary screws that rely on interference fits. These embodiments illustrate both “a representative number of species” as well as “structural features common to the members” of the genera. *Juno*, 10 F.4th at 1335.

#### **1. The Priority Applications Disclose Temporary Screws with Asymmetric Threads**

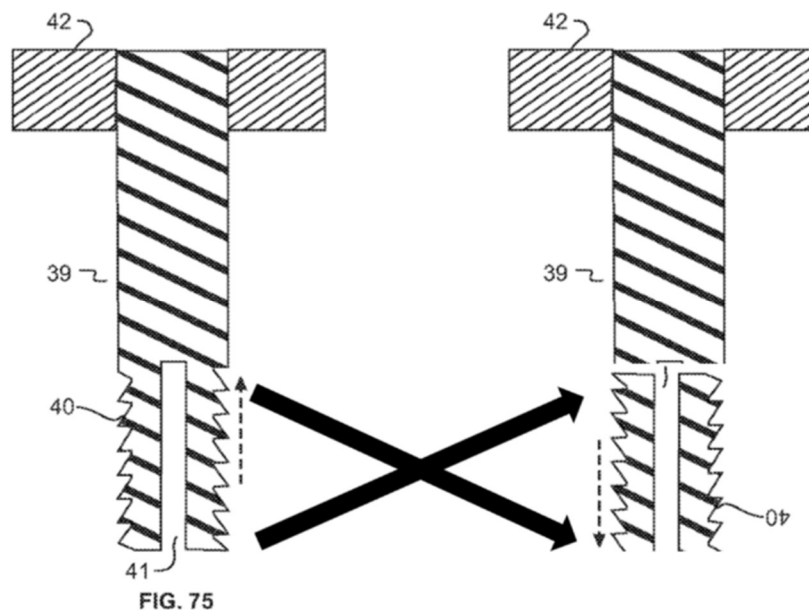
First of all, the Priority Applications disclose temporary screws with asymmetric threads, which are different than the definitive screws' standard symmetric threads. “For example,” the '361 Application states, “as shown in FIG. 75 an alignment fastener 39 may contain a separable threaded or serrated portion 40 that *engages the screw threads in the abutment* for pick-up, *but that will release with axial force after.*” '361 Application, 97 (emphasis added). Figure 75 illustrates one configuration of asymmetric threading that could accomplish this. Because Figure 75's asymmetric threads have the same pitch as the abutment

threading, they can achieve “rotational engagement of the bottom of the post with internal threads of the abutment.” *Id.*, 100.

Just as important, the threads are different from the definitive screw’s—and so do not completely fill the abutment threads as the definitive screw threads do—allowing the temporary screw to disengage the abutment threads during pick-up processing when the clinician pulls the prosthesis off the abutments. The ’361 Application thus describes “asymmetric threads or serrations 40 that allow the temporary attachment post to be inserted through rotation for alignment for coping pick-up but may be subsequently extracted with a separation force in the axial direction.” ’361 Application, 97. Moreover, the written description does not limit the disclosed threading to the buttress threads shown in Figure 75. It merely references “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.” *Id.*, 97. A POSA would understand that the inventive concepts animating this function can be practiced even if she adjusted the asymmetric threads’ geometry or substituted other well-known screw profiles for what is shown in Figure 75. 2 Leinsing ¶134.

For example, the ’361 Application explains, “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.” ’361 Application, 97

(emphasis added). A POSA would understand this to refer to *at least* one additional asymmetric thread profile, what the Petition calls a reverse buttress thread. 2 Leinsing ¶135. A POSA would thus understand the Priority Applications to disclose a temporary screw with reverse buttress threads, as shown below:



2 Leinsing ¶135. A POSA would understand that these threads, if designed correctly, could also screw into the abutment by engaging the female abutment threading and, on a fastener made of plastic, would also “release” the threading “with axial force after.” *Id.*, ¶¶136-37. So the Priority Applications disclose such a screw as well.

It does not matter at all that the '361 Application includes the phrase “as shown in FIG. 75.” '361 Application, 97. The Priority Applications make clear that Figure 75 is “for the purpose of illustrating” a “certain convenient embodiment[.]”

and is “not to be considered as limitation thereto.” *Id.*, 72; *see also id.*, 100 (“Various embodiments have been described to illustrate the disclosed inventive concepts, not to limit the invention.”). A POSA would not understand the ’361 Application specification to describe only the Figure 75 temporary screw; it specifically forecloses that understanding. 2 Leinsing ¶130. Nor does the specification limit itself to buttress threads like Figure 75’s. Rather, it discloses threading “that engages the screw threads in the abutment for pick-up, but that will release with axial force after,” and later discusses “asymmetric threads” generally. ’361 Application, 97.

A POSA would thus understand the inventive concepts to cover multiple variations of the temporary fasteners described: “a separable threaded or serrated portion ... that engages the screw threads in the abutment ... but that will release with axial force after.” *Id.* Because (in Petitioner’s words) “this is a predictable technology,” Pet. 52, a POSA could readily recognize and visualize the full scope of “asymmetric threads” (a known category) included in this genus. ’361 Application, 97.

“‘[A] patentee may rely on information that is well-known in the art’ to the extent it informs how a relevant artisan would reasonably understand what is actually described in the specification.” *BASF v. Commonwealth Sci.*, 28 F.4th 1247, 1264-65 (Fed. Cir. 2022)). Brunski identified the “asymmetric buttress

thread with a smaller (shallower) proximal thread angle” as “[o]ne well known ... example of such a thread pattern design.” Brunski ¶270. A POSA would be aware that asymmetric threads also include a reverse buttress thread like the one the Priority Applications describes. *See* ’361 Application, 97 (emphasis added); 2 Leinsing ¶135; *see also* Brunski Dep., 114:14-15 (testifying that a POSA “would know that a reverse buttress is an asymmetric thread pattern”).

Furthermore, the Priority Applications disclose temporary screws both with ***and*** without the slotted post shown in Figure 75. A POSA would understand that Figure 75’s slotted post is not essential to the design and could be incorporated or not, as desired. 2 Leinsing ¶¶139-41. The ’361 Application never says the split post shown in Figure 75 is critical to the invention. *Id.*, ¶141(a). To the contrary, it says only that “[i]n ***some*** embodiments, the threaded end of the post portion of the temporary fastener has a deflecting feature.” ’361 Application, 78 (emphasis added). This “deflecting feature” could include, but certainly would not be limited to, a slotted post like the one shown in Figure 75. 2 Leinsing ¶141(b).

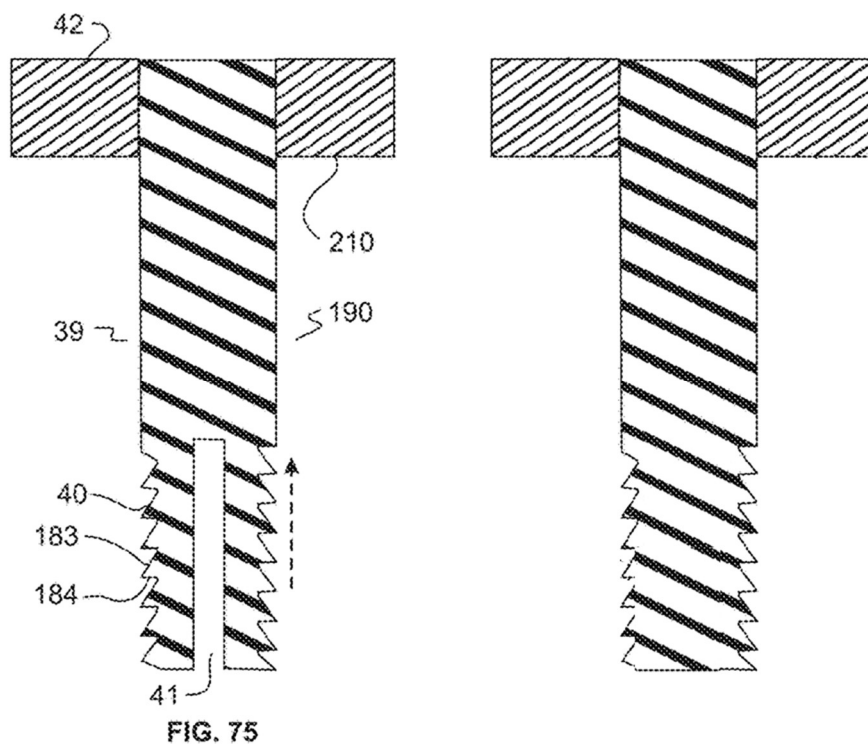
A POSA would also understand that the slotted post is not necessary for the temporary screw to release from the female abutment threads. 2 Leinsing ¶140. Rather, screw threads made of plastic or polymer material, which the Priority

Applications disclose,<sup>4</sup> would deform when the clinician pulled out the screw. 2 Leinsing ¶¶137, 199. And a screw with a slotted post will have threading shaped differently from one that does not. 2 Leinsing ¶143.

One example of a slotted post with asymmetric threading is Figure 75, shown below left; an example of a post with asymmetric threading but *no* slotted post is shown below right.

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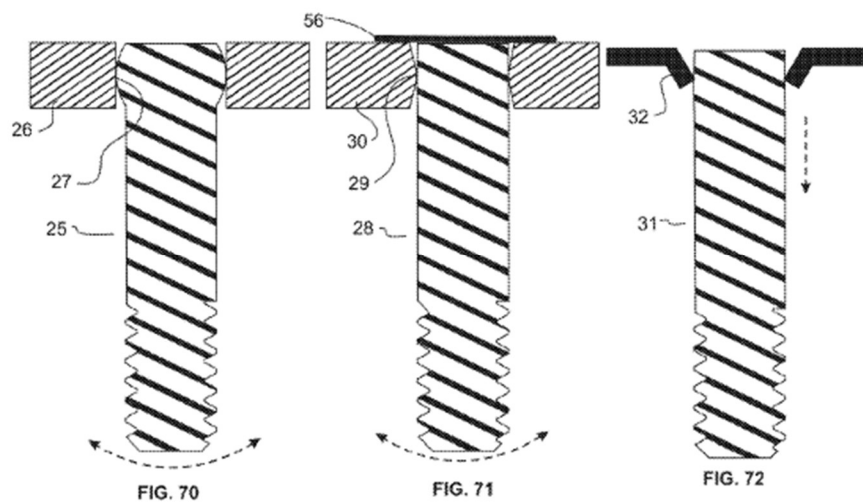
<sup>4</sup> “Metal, metal-reinforced, ceramic, and *polymer* copings, posts and fasteners may be included in this and other embodiments.” ’361 Application, 98-99 (emphasis added); *id.*, 95 (“Temporary attachment posts and caps may be made from metal and polymer materials such as titanium, stainless steels, nylon and PEEK and other non-corrosive biocompatible materials.”).



2 Leinsing ¶142. These are two different threading profiles or shapes; one has continuous asymmetric threading while the other has asymmetric threading broken up by slots. The Priority Applications disclose both. 2 Leinsing ¶143.

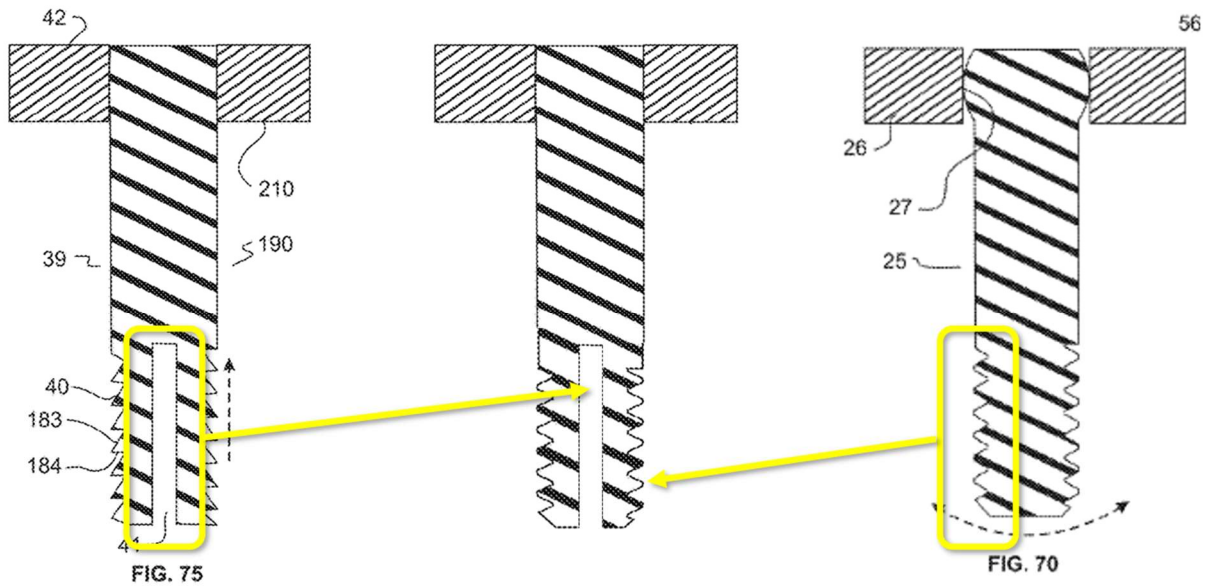
## 2. The Priority Applications Disclose Slotted Temporary Screws with Symmetric Threads

The Priority Applications likewise disclose a temporary screw with both a slotted post and symmetrical threads, resulting in a threading profile different from the definitive screw's. 2 Leinsing ¶144. Numerous drawings depict temporary screws with symmetrical threads:



'361 Application, FIGS. 70-72; *see also id.*, FIGS. 73-74; 2 Leinsing ¶¶144.

A POSA would understand that these symmetrical threads could be combined with the slotted post shown in Figure 75. 2 Leinsing ¶¶145-46. This embodiment would have symmetrical threads different from the definitive screw's, which have a continuous helical shape not interrupted by slots. 2 Leinsing ¶¶147, 149. The combination would produce the screw illustrated below, middle:



2 Leinsing ¶147. A POSA would combine these disclosed elements because the specifications direct her to do so: “[t]he particular features, structures, or characteristics” of various embodiments “may be combined in any suitable manner in one or more embodiments without limitation.” ’361 Application, 72; 2 Leinsing ¶148.<sup>5</sup>

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<sup>5</sup> Brunski apparently discounted these directions because he saw them as “kind of a boiler plate statement that is kind of always there” in patents. Brunski Dep., 67:25-68:4. But Brunski ultimately admitted, as he must, that following these instructions was “part of the process” required for reading the disclosures. *Id.*, 68:5-10.

The resulting screws' male threading would be (a) different from the definitive screw's continuous, symmetrical threads, as well as (b) "shaped to facilitate axial separation without unscrewing the post threads," just like the buttress threads shown in Figure 75 and the reverse buttress threads. '361 Application, 78.

### **3. The Priority Applications Disclose a Temporary Screw With an Interference Fit**

Finally, the '361 Application describes a temporary fastener that uses "an interference fit between the bottom of the post with the threads," which can "be designed to provide sufficient engagement to provide adequate alignment and fixing of the coping for the pick-up bonding process." *Id.*, 100. A POSA would understand and readily visualize the interference fit described; "[a]n interference fit ... is a mechanical friction fit that results from inserting a large first part into a smaller hole of a second part." 2 Leinsing ¶151. The POSA would understand that such a screw could be designed to be pushed in or rotated in. *Id.*, ¶¶156-57. It would "engage the abutment threads," '361 Application, 66, through deformation (whether elastic or inelastic), *Id.*, ¶155.

A fastener designed for an interference fit will have "a threading profile that is different from that of the definitive screw." *Id.*, ¶157. Even if designed as a cylindrical post without threading at first, rotating or "[p]ressing a polymeric post large enough to produce an interference fit into the abutment's female threading

will result in the polymeric post's deformation." *Id.*, ¶¶155, 157. That is because the "elastic relaxation away from the crests creates a shallow male thread in the post" that would not fill the female abutment threads. *Id.*, ¶¶155-56. This is different from the definitive screw's standard symmetric threads.

Such a fastener, through deformation, would likewise "release the coping" during the pick-up process. '361 Application, 66; *see also* 2 Leinsing ¶157. And like all other disclosed embodiments, a temporary fastener with an interference fit would permit "easy removal of the dental prosthesis from the fastener post ... without the need for special tools or access to the fastener system to unscrew it." '361 Application, 65. It could "be picked-up in a closed-tray impression process without unscrewing the temporary fastener." *Id.*, 59.

Brunski even admitted that the '361 Application was "certainly describing" such an interference fit. Brunski Dep., 59:4-5; *id.*, 95:19-96:19 ("Q. Now that would be a release mechanism that doesn't include a split post, correct? ... A. Well, the release mechanism in this case would be just pulling out the Leinsing type of cylinder. ... Q. And that would have a release mechanism that doesn't include a split post, correct? A. That's correct."). He apparently discounted the disclosure because "[t]hat particular kind of fit to me is difficult to imagine." *Id.*, 59:3-4. "I mean, from a practical point of view, I find it hard to conceptualize that one," he said, "***but it's described here anyway.***" *Id.*, 59:5-7 (emphasis added). And he

eventually conceded that such a fastener's thread profile "would have the same pitch as the female that it's being shoved into." *Id.*, 62:2-4.

Brunski expressed doubts about "the size of the threads that would be created" by the deformation. *Id.*, 62:3-4. Thread size, however, is irrelevant. Regardless of thread size, the thread profile of such a fastener would be different from the definitive screw's thread profile as long as it did not completely fill the abutment's female threads. That would be true even if no threads were created at all. 2 Leinsing ¶157. And Brunski correctly admitted that a cylindrical post without threads at all would have a thread profile "different from the thread profile shown in Figure 75." Brunski Dep., 62:16-18.

Thus, though Brunski tried hard to criticize this embodiment—saying it was "a bit overly theoretical" because it "assum[es] this post is of the right deformability that this could actually happen the way it's described," *id.*, 60:8-10—the '361 Application nevertheless discloses it.

**B. These Disclosures Adequately Disclose the Claimed Genus Under *Ariad***

The Priority Applications thus disclose at least three species of temporary fastener satisfying claims 1 and 9. Alone and in combination, the three species are "a representative number of species falling within the scope of the genus," and they illustrate "structural features common to the members of the genus so that one of skill in the art can 'visualize or recognize' the members of the genus." *Juno*, 10

F.4th at 1335. That is particularly true because “[t]he mechanical field at issue” here “is a sufficiently predictable art that the disclosure of a species ... is sufficient disclosure of the genus.” *Ex parte Bush*, 2012 WL 3863280, at \*4 (BPAI Aug. 29, 2012).

Claims 1 and 9 cover temporary screws with threads that are different from the definitive screw and/or abutment. Such temporary screws will have threads that permit them to be inserted into the female abutment and provide the “axial tension control and the self-aligning characteristics of engaged screw threads,” ’361 Application, 62, which a POSA could readily design. The threads’ design—specifically, their mismatch with the abutment—will also allow them to be pulled out with reduced force when the clinician applies the axial force during pick-up. The temporary screws’ functions “are tightly connected to the geometry of the temporary screw threads.” 2 Leinsing ¶117. And the Priority Applications disclose not just one, but at least *three* such embodiments. What’s more, by describing and illustrating the definitive screw and abutments with female threading, in addition to the temporary screw embodiments, the Priority Applications adequately disclose the genus’s common structural features. This is enough under *Ariad*.

True enough, “*Ariad* held that ‘a description that merely renders the invention obvious does not satisfy the written description requirement.’” *L’Oréal v. Liqwd*, 2018 WL 3871776, at \*10 (PTAB Aug. 10, 2018). The Institution Decision

recognized this “cognitive dissonance,” a result of the “different requirements when considering unpatentability over the prior art and written description under 35 U.S.C. § 112.” Inst. Dec., 27. But “the application of that rule in *Ariad* was to a written description that included no more than ‘a vague functional description and an invitation for further research.’” *L’Oréal*, 2018 WL 3871776, at \*10. That is far from true in this case. “Here,” like in *L’Oréal*, “there is significantly more.” *Id.*

As in *Gillette*, a POSA “will recognize that the inventors were in possession of the necessary common attributes or features” possessed by all claimed embodiments, “in view of the embodiment disclosed.” 2023 WL 6367741, at \*18. And the minor, known differences between the species in this genus are such that a POSA could “readily discern that other members of the genus would perform similarly to the disclosed members,” meaning that fewer species need be disclosed “to adequately show possession of the entire genus.” *Bush*, 2012 WL 3863280, at \*4 (quoting *Bilstad*, 386 F.3d at 1125).

### **C. Petitioner’s Evidence and Arguments Otherwise Are Unsupported and Internally Inconsistent**

Nothing Petitioner offers to support its nondisclosure arguments comes close to carrying its burden of persuasion. Petitioner argues that the “Priority Applications do not support” the scope of claims 1 and 9 “because they describe only one temporary screw embodiment with a different thread pattern or profile:

the temporary screw of Figure 75.” Pet., 33. The Board tentatively agreed based on the limited, preliminary record. Inst. Dec., 30-31.

Petitioner is incorrect. “That a claim may be broader than the specific embodiment disclosed in a specification is in itself of no moment.” *Medtronic v. Teleflex Innovations*, 69 F.4th 1341, 1354 (Fed. Cir. 2023); *see also Martek Bioscis. v. Nutrinova*, 579 F.3d 1363, 1371 (Fed. Cir. 2009) (“[A] patent claim is not necessarily invalid for lack of written description just because it is broader than the specific examples disclosed.”). “[A]n applicant is ***not required*** to describe in the specification ***every conceivable and possible future embodiment*** of his invention.” *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1344 (Fed. Cir. 2001) (emphasis added). Rather, “each case must be decided on its own facts.” *Ex parte Kojer*, 2023 WL 4652884, at \*6 (PTAB June 28, 2023). Under *Ariad*, the disclosures need only provide enough for a POSA to recognize the claimed genus.

As shown above, the Priority Applications’ specifications, in light of the POSA’s experience, provide more than adequate written-description support for claims 1 and 9. These are inventions within a predictable art, as Petitioner argues. A POSA would understand that the asymmetric buttress threads shown in Figure 75 could be mixed and matched with other known asymmetric or symmetric threads (or, in the case of an interference fit, with no threads at all), all with or

without the slotted post shown in Figure 75. All such embodiments would satisfy the limitations of claims 1 and 9. 2 Leinsing ¶¶134-59.

Furthermore, there is a good reason why it makes no sense to require more embodiments to illustrate this inventive concept: different abutments and implants themselves may have different thread patterns. As the '942 Application explains, “various styles and systems of abutments and implants are commercially available”; the abutments shown in the drawings with standard metric (symmetrical) threads are “standard abutments.” '942 Application, 17. This is why, for example, Patent Owner sells its own fasteners in various configurations compatible with abutments made by Nobel Biocare, Straumann and Patent Owner itself. *See Smart-on-X, Separable Fastener Packs*, <https://perma.cc/98S7-KC2G>.

The temporary fasteners may also be screwed directly into an implant rather than an abutment. The Priority Applications make clear that “the abutments may be integral to the implants embedded into the patient[']s jaw or gingiva, or they may separate units that are attached to the implants.” '361 Application, 70; *id.*, 81 (“The distal end of the abutment may be directly attached to the patient’s jaw or attached to a separate implant attached to the jaw. The inventive concepts are not dependent upon the nature of the implant ....”). Regardless, “[t]he inventive concepts disclosed apply to both configurations.” *Id.*

Thus, using this technology on a given abutment or implant *cannot* depend on using the precise configuration shown on the Figure 75 temporary screw—because if that precise configuration matches the abutment or implant’s threads, it will not provide the invention’s advantages. Rather, based on the written descriptions themselves, a POSA would understand that employing this technology on any given abutment or implant works because the temporary screw’s threading is *different* from the abutment, implant, and/or definitive screw, such that it engages the implant abutment’s threads and then releases them. *See* 2 Leinsing ¶¶59, 131-32, 135.

For similar reasons, the Board was incorrect to tentatively conclude that “[a]ny *differences* in thread style are not called out by the disclosure, but are described and can be discerned only in relation to the respective threads’ functionality.” Inst. Dec., 30. This is splitting hairs. The differences in thread style “are tightly connected” to the respective threads’ functionality. 2 Leinsing ¶117; *cf.* *Bos. Sci. v. Johnson & Johnson*, 647 F.3d 1353, 1366 (Fed. Cir. 2011) (“[F]unctional claim language can meet the written description requirement when there is an established correlation between structure and function ....”). As explained above, the Priority Applications disclose multiple embodiments of temporary fasteners with different thread profiles.

The Board similarly went astray in its tentative reasoning that “although the claims here are directed to *differences* between the threads of a temporary and a definitive screw, the disclosure of the priority applications never discuss or even allude to this subject.” Inst. Dec., 32. Not so. Figure 75 depicts a temporary screw 39 with a thread profile 40 that is obviously different from the definitive screw 75 shown in Figure 9. In fact, the Petition acknowledges, Patent Owner emphasized this precise point in response to an examiner question during prosecution. Ex. 1015, 295-99; Pet., 34 (arguing that “Patent Owner *confirmed during prosecution* that the ‘thread profile’ and ‘threading shape’ of threads 40 of the temporary screw of Figure 75 are ‘*not the same*’ and ‘*different*’ than the threads of definitive screw 75 of Figure 9” (emphasis added)).

Finally, if any further explanation were necessary, the ’361 Application provides it, describing these threads as “*shaped to facilitate axial separation without unscrewing the post threads.*” ’361 Application, 78 (emphasis added). Given the predictability of the mechanical arts, a POSA would readily connect the dots here that the inventive concepts go to the differences between the temporary and definitive screw threads, not to the specific configuration shown in any drawing. *See* 2 Leinsing ¶¶59, 134-59 (discussing different disclosed embodiments).

This case is thus not like *Tronzo*; it is instead like *Gillette*. *Gillette* dealt with whether a provisional application contained adequate written-description support for the full scope of claims dealing with a shaving razor—specifically, whether disclosed embodiments in which the razor’s cartridge contained “two opposed legs” around a pivoting sphere were sufficient to also disclose embodiments in which the handle (rather than the cartridge) contained the legs. The challenger in *Gillette* (similar to Petitioner here) argued “the ’486 patent claims encompass subject matter neither described in earlier applications nor possessed by the inventor any earlier,” because it “does not ‘suggest to a [POSA] that the inventor had possession of a razor whose handle includes both the two opposed legs *and* the pivot sphere.’” 2023 WL 6367741, at \*8. The challenger even highlighted the same cases (*D Three* and *Tronzo*) on which Petitioner now leans. 2023 WL 6367741, at \*8 (referencing *D Three Enters. v. Sunmodo*, 890 F.3d 1042 (Fed. Cir. 2018); *Tronzo*, 156 F.3d 1154).

The Board rejected *Gillette*’s arguments. In fact, each of its reasons for rejecting *Gillette*’s arguments there supports rejecting Petitioner’s here:

- *Gillette*, as petitioner, bore the burden of persuasion in the proceedings before it. 2023 WL 6367741, at \*11.
- The independent claims at issue did not “expressly recite a location of the opposed legs,” and “the specification ... does not provide any

description that would suggest locating the opposed legs on the cartridge is critical.” *Id.* at \*12.

- The specification contained “permissive language with respect to locating the opposed legs off the cartridge.” *Id.*
- “[T]he technology is not complicated and the level of ordinary skill in the art sufficiently high such that the grandparent application reasonably conveys a razor with opposed legs not on the cartridge.” *Id.* at \*13. “A degreed mechanical engineer, with two years of experience in the razor/personal grooming industry would understand from the disclosure of the grandparent application that the opposed legs could be separately connected to the cartridge.” *Id.*
- “[T]he grandparent application clearly identifies the illustrated razor of Figure 1 as an *exemplary* embodiment.” *Id.* (emphasis added).
- “We find that the *disclosure of the single species is representative* of the two-species genus recited in the claims” because “both species ultimately *results in an assembled razor that functions as intended by the inventors.*” *Id.* at \*17 (emphasis added).

So too here:

- Petitioner has the burden of showing inadequate disclosure, so it does not receive the benefit of the doubt on any close issues.

- Independent claims 1 and 9 do not require asymmetric buttress threads or a split post as shown in Figure 75, nor does the specification indicate that those specific characteristics are critical elements of the invention.
- The specification contains permissive language regarding the characteristics claimed.
- The mechanical technology at issue here (screw threads) is not complicated and the level of ordinary skill is sufficiently high that the Priority Applications reasonably convey the full scope of the claims.
- The Priority Applications make clear that Figure 75, like the other drawings, is merely an exemplary embodiment and does not limit the claimed invention.

Like the challenges in *Gillette*, Petitioner’s written-description arguments here ultimately seek to “impose[]” on claims 1 and 9 “additional limitation[s]” they “do[] not contain.” *Gillette*, 2023 WL 63677414, at \*13 (quoting *Ethicon Endo-Surgery v. U.S. Surgical*, 93 F.3d 1572, 1582 n.7 (Fed. Cir. 1996)); *see also Trading Techs.*, 595 F.3d at 1352 (“courts must not import limitations into the claims from the specification”). The Board should give these tired arguments the same welcome they received there.

*Gillette* found another recent Federal Circuit case helpful as well, explaining that *Medtronic*, 69 F.4th 1341, had facts that were “strikingly similar to those in the present case. Like in *Medtronic*, the challenged claims at issue do not recite a location for the opposed legs, and we find that the location is not critical to the invention.” *Gillette*, 2023 WL 6367741, at \*14. The same is true here; this case’s facts are much closer to *Gillette* and *Medtronic* than to *Tronzo*.

*Gillette* also aptly highlights the aspects of *Tronzo* that make it inapplicable here. The Board emphasized that “the written description” in *Tronzo* “disclosed a conical shape for the prosthesis only and, **significantly**, characterized other shapes as ‘prior art’ and ‘inferior’ to a conical shape.” *Gillette*, 2023 WL 6367741, at \*15 (emphasis added). In *Tronzo*, “the conical shape” was “an extremely important aspect of the present invention.” *Id.* (quoting *Tronzo*, 156 F.3d at 1158-60). None of that is true here. Neither the specific thread shapes nor the split post are “an extremely important aspect” of the ’992 Patent, nor do the Priority Applications characterize other thread shapes or posts without deflecting legs as inferior. *See Fox Factory v. SRAM*, 2017 WL 1242973, at \*5 (PTAB Apr. 3, 2017) (similarly rejecting a *Tronzo* written-description argument). For the same reasons *Tronzo* did not control in *Gillette* and *Fox Factory*, *Tronzo* does not control here either.

Moreover, Brunski’s deposition testimony laid bare the analytical failings that made him overlook the additional disclosed embodiments not depicted in

Figure 75. For one thing, Brunski assumed that a temporary screw with a reverse buttress thread could not be screwed into the abutment's symmetric male threading.<sup>6</sup> That is demonstrably incorrect. 2 Leinsing ¶¶135-36. Brunski attributed this oversight to his own preconceptions, saying that he “ha[d]n’t sort of considered that idea in depth” because “it’s not immediately obvious to me that it would work.” Brunski Dep., 48:15-18. Yet he ultimately admitted he was incorrect on this point, acknowledging that with “the right pitch and the right helix angle,” a temporary screw with a reverse buttress thread could be threaded into an abutment with symmetric female threads. *Id.*, 51:14-22; *id.*, 114:3-5 (“Q. *And it would engage the female abutment threads?* A. *If designed correctly, yeah.*” (emphasis

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<sup>6</sup> Brunski Dep., 48:15-18 (“A. Well, but it wouldn’t thread in, ‘cause you got the wrong helix angle. I mean, it’s not designed to thread in if you flip it upside down. Q. There’s no way you can make it thread in? ... A. I really can’t answer without, you know, I haven’t sort of considered that idea in depth. Q. Why hadn’t you considered that idea? A. Well, looking at it, my understanding was we want something that can thread in, if I now invert the part and think about threading it in, it’s not immediately obvious to me that it would work. So I’d have to think about it.”); *id.*, 111:24-112:2 (“But it would be odd to put it in that way if you’re also trying to pull this thing out.”).

added)). He also conceded that such an embodiment would “look different than Figure 75” and would thus have a different thread profile. *Id.*, 51:23-52:2, 73:16-19. In the end, Brunski’s unsound conclusion that the ’361 Application disclosed no such embodiment rested on his notion that a reverse buttress thread would not “be the first thing that somebody would think of.” *Id.*, 53:10-11. That is obviously ***not*** the applicable standard for a written description.

More broadly, Brunski failed to recognize and visualize the other disclosed embodiments within this genus because he misapplied the POSA standard in a way that conveniently benefitted Petitioner’s arguments. The POSA that Brunski uses to evaluate the written descriptions in this case is markedly ***less*** intelligent, capable, and creative than the POSA that Brunski invokes to argue obviousness.<sup>7</sup> At times, Brunski’s POSA even directly contradicts himself ***on the same issues***. For example, to argue that claim 10 is unsupported by the Priority Applications, Brunski asserts that “[b]oth” the definitive screw and the Figure 75 temporary screw “appear to have the same maximum thread diameter.” Brunski ¶157.

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<sup>7</sup> Brunski Dep., 177:16-25 (“Q. And isn’t this interpretation of what Bernhard discloses more generous than your interpretation of the 361 priority application[’]s disclosures? ... A. I hear you. And I take your point. Q. When you say I take your point, does that mean yes? A. I understand that you can see it that way.”).

“[B]ecause they have the same maximum thread diameter and the same thread pitch,” he reasoned, “[c]laim 10 is *not supported*.” *Id.* (emphasis added). But later in the same declaration, Brunski argues that *the same claim is obvious* because the proposed combination of Bernhard, Poovey, and Gracco necessarily has “a smaller maximum thread diameter” than the definitive screw and the abutment threading—and would therefore satisfy the exact same claim 10 limitations that Petitioner earlier argued were unsupported. *Id.*, ¶346. In short, whether Brunski selects the highly capable or the incompetent POSA at any given point in his analysis seems to depend on which will help Petitioner’s arguments.

**D. The Claims are Entitled to the Priority Applications’ Priority Date Even if the Priority Applications Only Disclosed Figure 75 and Nothing More**

Even if the Board were to disagree with all of the above, the ’992 Patent would still be entitled to the ’361 Application’s priority date. That is because both Petitioner and the Institution Decision correctly acknowledge that the ’361 Application specification describes and enables at least one embodiment covered by the patent claims, namely the temporary screw shown in Figure 75.

Petitioner admits that the disclosures describe “one temporary screw embodiment with a different thread pattern/profile compared to the disclosed definitive screw(s)—that is, the embodiment illustrated at Fig. 75 of the ’992 Patent (i.e., Fig. 75 of Kofford/the ’361 Application and Fig. 43 of the provisional

applications) and described in the association portion of the written Specification.” Pet., 24. And the Board reasoned that, “[r]egarding the *different thread* claim limitations, the Specification of the ’992 Patent itself, as well as the other preceding applications to which priority is indicated ... discloses a single embodiment where a temporary screw has threads that are *different* from the threads of a definitive screw, which is illustrated at Fig. 75 (i.e., Fig. 43 in the ’942 and ’402 provisionals ...) and described at column 23, lines 3-34 of the ’992 Patent.” Inst. Dec., 28.

Therefore, the ’992 Patent is entitled to the ’361 Application’s priority date *at least* as to that embodiment, and Kofford cannot be invalidating prior art. Under 35 U.S.C. § 112(f), “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure in support thereof, and such claim shall be construed to cover the corresponding structure ... described in the specification and equivalents thereof.”

In short, even if the Board concluded that the written descriptions did not provide adequate support for the full scope of the claims, those descriptions still provide sufficient written description of the Figure 75 embodiment and are entitled to the Priority Applications’ priority date. Therefore, Kofford still would not be prior art, and Grounds 1-3 would fail for this reason.

**E. The '992 Patent's Dependent Claims Are Likewise Supported by Adequate Written Description**

After walking through its arguments regarding the written-description support for independent claims 1 and 9, the Petition devotes a few short pages to arguing that the dependent claims are similarly unsupported. Pet., 41-43. These arguments, each weaker than the one before, do not merit even the scant attention that Petitioner gives them.

Petitioner first argues that “[c]laims 2, 4, 6, 7, 8 and 12 are not supported for the same reasons as claims 1 and 9.” Pet., 41. For the same reasons that claims 1 and 9 are adequately supported, these dependent claims are likewise supported and therefore entitled to the Priority Applications’ priority date. 2 Leinsing ¶174.

Petitioner next argues that claim 3’s *asymmetric threads* limitation and claim 5’s *threading contact area* limitations are not “described or enabled” because they encompass numerous “undisclosed” embodiments. Pet., 41-42. As Leinsing explains, however, the Priority Applications’ specifications sufficiently disclose material to support these limitations, for the same reasons that claims 1 and 9 are supported. 2 Leinsing ¶¶178, 181.

Petitioner next argues that claim 10 is unsupported “because the threads of the temporary screw of Figure 75 have the same maximum thread diameter and thread pitch, and therefore the same pitch angle, as the threads of the definitive screw and the abutment of Figure 9.” Pet., 42. This is obviously incorrect because

Figure 75 could not possibly have the same maximum thread diameter as Figure 9's definitive screw; the buttress threads would not fit in the female abutment threading if it did. Moreover, as Leinsing explains, Brunski's argument here fails to account for the temporary screw's asymmetric geometry. And, finally, Brunski is wrong to assert that these screws have the same pitch angle. 2 Leinsing ¶¶184-91.

Petitioner argues that claims 2-3, 5-7, and 10-12 are unsupported “for the same reasons as claims 1 and 9 because these claims add limitations that do not require the temporary screw to have deflecting legs that permit the screw to be pulled out.” Pet. 42-43. As Leinsing explains, however, this argument turns on an implicit claim construction that is incorrect. 2 Leinsing ¶195.

Finally, Petitioner argues that claim 7's *thread deformation* limitation is unsupported because the Priority Applications “do not describe any differently-threaded temporary screw with threads that ‘deform’ during release.” Pet., 198. This is incorrect; “[t]aking, for example, an asymmetric threaded temporary screw made of plastic *without* a slotted or split post”—which the Priority Applications disclose—“the threads of such a screw would deform upon axial pullout to facilitate removal.” 2 Leinsing ¶199. A fastener using an interference fit would likewise provide written-description support for this claim. *Id.*, ¶201.

## **F. The Petition’s Enablement Argument Fails**

As the Board noted, “[t]he Petition also includes a one-sentence argument that the full scope of the independent claims is not enabled.” Inst. Dec., 23 n.13. This single sentence does not contain “a full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent,” as required. 37 C.F.R. § 42.22(a)(2); *see also Intelligent Bio-Sys. v. Illumina Cambridge*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”). The Petition contains no analysis of whether a POSA could “practice the claimed invention ‘without undue experimentation,’ a determination typically guided by the so-called *Wands* factors,” *Pac. Biosci. v. Oxford Nanopore*, 996 F.3d 1342, 1350 (Fed. Cir. 2021), which require “weighing many factual considerations,” *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

Petitioner thus failed to develop (and waived) any separate enablement challenge. To the extent Petitioner means to rely on the same arguments that support its written-description argument, Patent Owner’s responses to those arguments suffice to respond to any enablement argument as well. *See LizardTech*, 424 F.3d at 1345 (“Those two requirements usually rise and fall together.”).

## VII. GROUNDS 4-6 OF THE PETITION FAIL TO SHOW ANY CLAIMS WERE OBVIOUS

“An obviousness determination requires finding that a [POSA] would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so.” *Endo Pharms. v. Actavis*, 922 F.3d 1365, 1373 (Fed. Cir. 2019). “[O]bviousness concerns whether a skilled artisan not only *could have* made but *would have been motivated* to make the combinations or modifications of prior art to arrive at the claimed invention.” *Belden v. Berk-Tek*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (emphasis added). The combinations of prior art must disclose or suggest “each and every element of the challenged independent claims” to be found obvious. *Eli Lilly v. Teva Pharms.*, 2020 WL 806932, at \*12 (PTAB Feb. 18, 2020).

“Relevant underlying findings of fact include: (1) ‘the scope and content of the prior art,’ (2) ‘differences between the prior art and the claims at issue,’ (3) ‘the level of ordinary skill in the pertinent art,’ and (4) the presence of objective indicia of nonobviousness such ‘as commercial success, long felt but unsolved needs, failure of others,’ and unexpected results.” *Endo*, 922 F.3d at 1373. Prior art “must be considered in its entirety, i.e., as a *whole*, including portions that would lead away from the invention in suit.” *Panduit v. Dennison Mfg.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987) (emphasis added).

Grounds 4-6 argue that various combinations of Bernhard, Poovey, Gracco, Derey, Nino and Ruetschi render the claims obvious. That is incorrect. For the reasons explained below, the proposed combination would not meet the claims' limitations. Furthermore, no POSA would be motivated to combine Bernhard, Poovey and Gracco in the manner Petitioner posits, much less motivated to add Derey on top.

**A. Combining These References Would Not Meet All Limitations of the Claimed Invention**

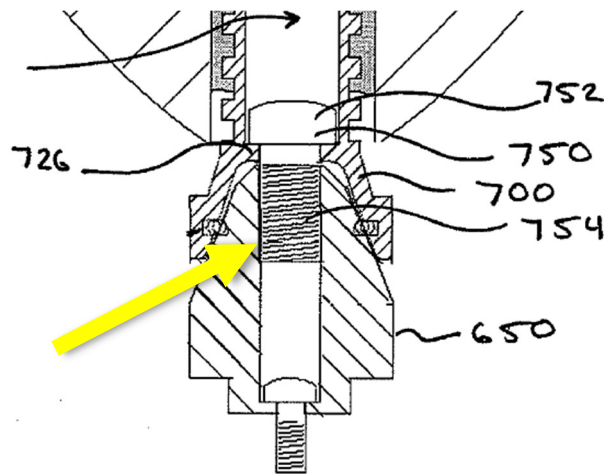
According to Petitioner, a POSA would (1) take Bernhard's snap-on system, then (2) switch out the snap-on connector for Poovey's temporary screw with flexible silicone threads, before finally (3) substituting Gracco's buttress threads for the silicone threads. Pet., 54-62. This combination forms a common foundation for the obviousness arguments in Grounds 4-6.

However, Petitioner's thought experiment glosses over a key aspect of the claimed invention, which appears *nowhere* in Petitioner's prior art: "threads in a pattern that is *shaped differently* from a pattern of the threads of the definitive screw" for claim 1, and "a male threading profile *that is different* from the male threading profile of ... the definitive screw" for claim 9. '992 Patent, 25:53-55, 26:52-54 (emphasis added).

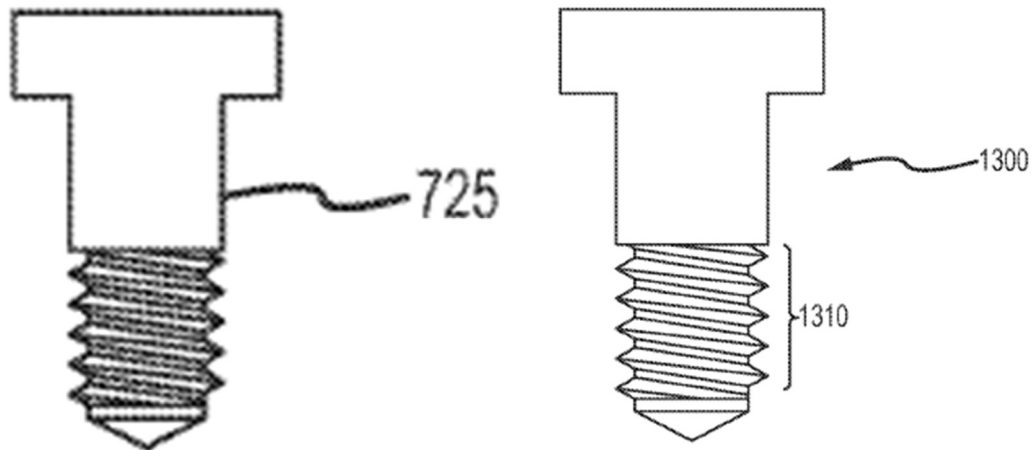
Petitioner's superficial analysis of these limitations (1(g) and (9g)) obscures this shortfall. The argument merely assumes, without justification, that its

“temporary screw with flexible buttress threads” will be “shaped differently” from “the matching, symmetric threads” of the definitive screw. Pet., 66; *id.*, 74-75 (similar); 2 Leinsing ¶211. Not so. Bernhard, Poovey, and Gracco nowhere teach using mismatched threads. 2 Leinsing ¶211. There is not a single reference, suggestion, hint, whisper, gesture, or even nod in that direction anywhere in those references. Nor is there any such teaching in Derey or Ruetschi either.

To the contrary, Bernhard discusses and illustrates only a definitive screw that male threading that matches and “engages *corresponding threading*” in the abutment. Ex. 1003, [0134] (emphasis added).



Ex. 1003, FIG. 12 (annotated); 2 Leinsing ¶¶212-14. Though Poovey’s permanent screw is not configured to be screwed into the same female threading as the temporary screw, Poovey’s temporary screw *exactly* matches the shape of the fixation screw and, by extension, the implant/abutment threading as well:

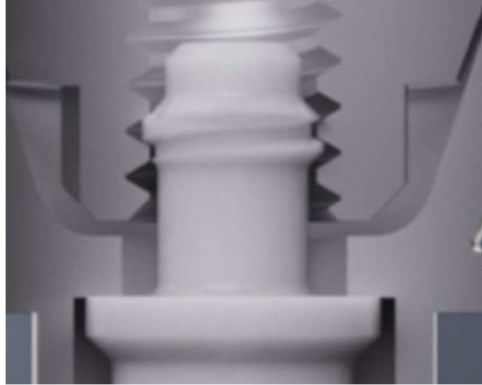


Ex. 1005, FIG. 7 (fixation screw), FIG. 13 (temporary screw); *see also* 2 Leinsing ¶¶214-20. And the mini-screws in Gracco were “self-drilling and self-tapping, with a cutting flute at their apex,” Ex. 1006, 4, meaning that these mini-screws *by definition* matched the synthetic bone’s female threading; they created the female threading. “[N]othing in Gracco teaches or suggests using a temporary screw with a thread profile that is different from a definitive screw or the corresponding abutment.” 2 Leinsing ¶221.

Similarly, Derey (part of Ground 5’s proposed combination) does not teach putting threading on temporary fasteners at all, much less teach or suggest the required thread mismatch. 2 Leinsing ¶¶222-23. The snap-in fastener in Derey’s Figures 5 and 6 is not a screw and has no threading. Ex. 1008, 18-19. Ruetschi (part of Ground 6’s proposed combination) does not disclose or suggest this limitation either. 2 Leinsing ¶¶240-41.

The upshot of this is that even if a POSA used Bernhard as a starting point, added Poovey's temporary screw, and modified the threads per Gracco, that still would not produce a temporary screw that is a mismatch to the abutment's female threading or the definitive screw's male threading. None of these references teach that concept, alone or in combination. *Id.*, ¶¶223-25. Certainly, Petitioner has not produced any evidence suggesting a motivation to mismatch the threads or pointed to any prior art teaching that concept. The temporary screw's threads of the proposed combination therefore would not be "shaped differently" or have a "different" threading profile, as the claims require. '992 Patent, 25:54, 26:52-53. To conclude otherwise would be to fall into the "temptation to read into the prior art the teachings of the invention in issue." *Plantronics v. Aliph*, 724 F.3d 1343, 1355 (Fed. Cir. 2013).

Petitioner apparently hopes the Board will overlook this critical inventive concept. It cannot. The idea of mismatching the threads between the temporary and definitive screws is one of the principal innovations differentiating the invention from prior technology. It is what makes the temporary screw capable of rotating in and then pulling out. It is the creative 'spark' that makes this invention novel. It is also the precise inventive concept that Petitioner's knock-off incorporates:



Ex. 1019, 4.

In short, even if the POSA combined Bernhard, Poovey, and Gracco as Petitioner suggests, the resulting combination would still lack this key concept—and it would not satisfy claim 1 and 9’s limitations.

**B. A POSA Would Not Have Been Motivated to Combine the Prior Art to Arrive at the Invention**

Even assuming the prior art could be combined to reach the claimed invention, no POSA would be motivated to do so. And assuming a POSA would combine Bernhard and Poovey, a POSA would have no motivation to add Gracco and then Derey on top of it all. Petitioner fails to adduce any evidence proving otherwise.

In evaluating motivation, the Board must consider prior art in its entirety, including those portions that teach away from the claimed invention. *See Henny Penny v. Frymaster*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (discussing “longstanding principle” that “the prior art must be considered for all its teachings, not selectively”). “A reference may be said to teach away when a [POSA], upon

reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *Polaris v. Arctic Cat*, 882 F.3d 1056, 1069 (Fed. Cir. 2018).

The Board must also be careful to evaluate motivation without “hindsight bias” and without using the ’992 Patent “as a roadmap to reconstruct the claimed invention using disparate elements from the prior art.” *TQ Delta v. CISCO*, 942 F.3d 1352, 1361 (Fed. Cir. 2019); *KSR v. Teleflex*, 550 U.S. 398, 421 (2007) (warning factfinders to avoid “the distortion caused by hindsight bias” and “arguments reliant upon *ex post* reasoning”). That is because “[t]he genius of invention is often a combination of known elements which in hindsight seems preordained.” *Cheese Sys. v. Tera Pack*, 725 F.3d 1341, 1353 (Fed. Cir. 2013); *see also Amerigen Pharms. v. UCB Pharma*, 913 F.3d 1076, 1089 (Fed. Cir. 2019) (“Any compound may look obvious once someone has made it and found it to be useful, but working backwards from that compound with the benefit of hindsight, once one is aware of it, does not render it obvious.”). Petitioner’s obviousness arguments rely heavily on hindsight bias because they use “the template provided by the inventor” and then work backwards. *Orexo AB v. Actavis Elizabeth*, 903 F.3d 1265, 1271 (Fed. Cir. 2018). The Board must resist this distorted reasoning.

Brunski asserts that a POSA would combine Poovey and Gracco “so that the temporary screw would provide a stable, reliable and secure connection, while

retaining the ability to be pulled out without having to be unscrewed.” Brunski ¶277. But according to Brunski, Bernhard and Poovey already accomplish precisely this. *Id.*, ¶266 (stating that Poovey’s “threaded temporary screw” would be “more stable, reliable and secure” than Bernhard’s snap-fit connector); *id.*, ¶280 (“A POSA would have been motivated to improve the system disclosed in Bernhard, because Bernhard’s snap-fit connection would be less stable, reliable and secure ... than using a temporary screw, like the one disclosed in Poovey”). In other words, the proposed motivation for adding Gracco is to address issues that Poovey, supposedly, *already solved*. See 2 Leinsing ¶¶227-28. That makes no sense. A POSA would not be motivated to add Gracco to Bernhard-Poovey. Petitioner’s arguments otherwise thus rely on “the blueprint drawn by the inventor”—that Figure 75 has asymmetric buttress threads—rather than confining themselves to “the state of the art that exist at the time.” *Interconnect Planning v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985).

The same is true for Derey, which Petitioner argues the POSA would next add *on top of* Bernhard, Poovey, and Gracco. Pet., 78-81. Petitioner argues that a POSA “would have been motivated” to incorporate Derey’s deflecting legs into the Bernhard-Poovey-Gracco temporary screw “in order to make it easier to pull the screw out of the abutment while still ensuring that the temporary connection is stable and secure.” *Id.*, 79. But as with Gracco, there is no reason for a POSA to

dig around after Derey—because these are all problems that, according to Brunski, Bernhard and Poovey *already solved*. See Brunski ¶266 (stating that Poovey’s “threaded temporary screw” would be “*more stable, reliable and secure*” than Bernhard’s snap-fit connector (emphasis added)). And taking Derey as a whole, the combination makes little sense because Derey explicitly teaches that its “flexible devices are designed to be used *instead of* the screws used for attaching the construction to the implants.” Ex. 1008, 10; see 2 Leinsing ¶¶234-35.

In short, no POSA would be motivated to combine Bernhard and Poovey with Gracco and, finally, Derey, in any configuration suggested by Grounds 4-6.

### **C. The Petition Relies on Impermissible Hindsight to Arrive at the Claimed Invention**

The illogic of Petitioner’s proposed combinations points to the true motivation for arguing these combinations: to satisfy all of the claim limitations and recreate Figure 75. If a Bernhard-Poovey combination would have worked as well as Petitioner and Brunski argue, there would be no reason (apart from hindsight) to further modify the temporary screw with Gracco’s buttress threads. The only true explanation for this proposed combination is apparent: Figure 75 has buttress threads. 2 Leinsing ¶229. There would be even less reason to further incorporate Derey’s deflecting legs—apart from the fact that Figure 75, which Petitioner hopes to undercut, has them. *Id.*, ¶237.

The Petition’s analysis is therefore off-track. Without the ’992 Patent’s claims as an (impermissible) roadmap, a POSA would not have been motivated to pick-and-choose among the prior art to arrive at the claimed invention; Petitioner is simply trying to cobble together whatever is needed to reach that destination. Clearly, Petitioner used the ’992 Patent “as a roadmap to reconstruct the claimed invention using disparate elements from the prior art.” *TQ*, 942 F.3d at 1361. None of its evidence proves otherwise.

**D. Objective Evidence of Non-Obviousness Confirms That a POSA Would Not Have Been Motivated to Combine the Prior Art as Petitioner Suggests**

Objective evidence confirms that the ’992 Patent claims are not obvious. Objective evidence of non-obviousness is critical to “protect against the improper use of hindsight.” *Exela Pharm. v. Eton Pharms.*, 620 F. Supp. 3d 108, 137 (D. Del. 2022). In fact, objective evidence “may often be the most probative and cogent evidence” of non-obviousness “in the record.” *Procter & Gamble v. Teva Pharms.*, 566 F.3d 989, 998 (Fed. Cir. 2009). These include “commercial success enjoyed by devices practicing the patented invention, industry praise for the patented invention, copying by others, and the existence of a long-felt but unsatisfied need for the invention.” *Apple v. Samsung*, 839 F.3d 1034, 1052 (Fed. Cir. 2016). The secondary considerations relevant to the ’922 Patent uniformly show that these inventions were novel, innovative, and not obvious.

## 1. Long-Felt but Unsatisfied Need

Dentists practiced the closed-tray and open-tray techniques for *decades* before 2018 and 2019, when the Priority Applications were filed. “[T]he closed-tray technique is somewhat simpler in its design and execution,” Kumar explained in 2001, but “is sometimes prone to inaccuracies where sufficient care is not taken during the step of reinserting the impression coping(s) into the impression material.” Ex. 1004, 22. The open-tray technique, on the other hand, “is generally more accurate” but is also “more complex and, as a result, often takes more time to prepare and execute.” *Id.* Little changed between Kumar’s 2001 description and Poovey’s 2016 description. Ex. 1005, 16 (“Conventional open and closed tray techniques both use screws to secure the impression coping to the implant.”).

Over this same time, “dental implant prevalence among US adults with missing teeth ... *substantially increased*.” Ex. 2023, 1 (emphasis added). Nevertheless, despite established knowledge of these known techniques, including their drawbacks, and their increasingly frequent use by practitioners, *no inventor* arrived at the claimed invention before Kofford and Rudisill. “The existence of an enduring, unmet need is strong evidence that the invention is novel, not obvious, and not anticipated.” *In re Mahurkar*, 831 F. Supp. 1354, 1377-78 (N.D. Ill. 1993) (Easterbrook, J.), *aff’d*, 71 F.3d 1573 (Fed. Cir. 1995).

Patent Owner began selling its revolutionary Smart Denture Conversions products at the end of 2019 and experienced explosive growth because of their significant advantages over traditional open- and closed-tray techniques, including their stability, strength, convenience, and accuracy. *See* Ex. 2024 (“introduced to the market in 2019”).

## **2. Copying by Others**

Petitioner’s own actions likewise offer additional objective evidence showing the ’992 Patent’s technology was non-obvious. Indeed, Petitioner’s decision to jump into a single-supplier market “in late January 2024,” *see* Ex. 1028, ¶15, and introduce a product to compete head-to-head with Patent Owner simply contradicts their convenient assertion here that “any commercial success of or praise for [Patent Owner’s] ‘Separable Fastener’ device” is irrelevant “because it would have no nexus with claims 1-12.” Pet., 84.

To the contrary: the success of Petitioner’s Separable Fastener is precisely the reason Petitioner introduced NeoConvert, which infringes the ’992 Patent. The two systems compete head-to-head, enjoy the same benefits and advantages over traditional techniques, and are in high demand in the industry.

## **3. Industry Praise**

Though Dr. Kofford and Mr. Rudisill expected the Patent Owner’s technology to improve conversion procedures, the technology and resulting

products ultimately resulted in more significant gains in efficiency, comfort, and prosthesis strength than even the inventors initially anticipated—leading to greater commercial success than they anticipated as well. For these reasons, dental practitioners and patients have praised Patent Owner’s products and technology. One practitioner, for example, declared that “at this point, I can’t imagine doing a conversion any other way.” Voices, 6:20-31.

The embodiments present in Petitioner’s NeoConvert system, which infringes the ’992 Patent, enjoy these same benefits and advantages. Despite what Petitioner now argues to the Board was obvious, its marketing communications tell a different story. Only a few weeks ago, Petitioner told its customers that NeoConvert products “represent[] a *significant innovation* compared to the conventional technique.” Ex. 2025. In 2024 it called them “*a different way* to transform smiles,” Ex. 2026. On a website available to this day, it calls them “*game-changing*.” Ex. 2027. “The main improvements that this technique offers are related to conversion time, robustness of the temporary prosthesis, and accuracy.” Ex. 2025. It is no coincidence that these are the same benefits that Patent Owner’s products offer—because both embodiments were invented by Dr. Kofford and Mr. Rudisill, and both were disclosed in the Priority Applications. ClearChoice, a nationwide dental provider, likewise calls NeoConvert “a *game-*

*changing* treatment technique,” bragging that “ClearChoice was first to test and evaluate this *innovation* in 2023.” Ex. 2028 (emphasis added).

A 2024 published case report calls NeoConvert “a novel, more precise, and time-saving denture conversion technique.” Ex. 2029, 3. Practitioners offered similar praise on the Inside Dentistry Product Talk podcast. One said that he “hated” “the old-school way” of doing conversions: “not only is it not fun for the patient, but it’s expensive and takes up a lot of chairtime.” Product Talk, 1:49. He bragged that conversions with NeoConvert result in “extremely small” “screw access holes,” meaning “[t]he integrity of that denture has not been compromised at all.” Product Talk, 10:33. “You look at it, and it’s like, oh, this looks like the world’s greatest technician did it.” *Id.*, 10:40. He said that he could “get the patient out of the chair in thirty minutes” and that NeoConvert “is so easy, you don’t need a lab technician.” *Id.*, 11:47, 12:20. “I’m really excited to see what this product will do for the full-arch world of dentistry,” he concluded, saying that “it’s definitely going to disrupt some things” in “a good way.” *Id.*, 17:40.

In short, dentists praise both Patent Owner’s Smart Denture Conversions products as well as Petitioner’s NeoConvert products for the same reasons. They share the same significant benefits and advantages over traditional conversion techniques—because they both use technology that the ’992 Patent’s inventors invented and disclosed in the Priority Applications. Both products’ commercial

success, like all the other objective evidence, confirms the '992 Patents' claims are non-obvious.

## **VIII. CONCLUSION**

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

Respectfully submitted,

Dated: March 13, 2026

By: /s/ Kelsey I. Nix  
Kelsey I. Nix (Registration No. 33,119)  
Counsel for Patent Owner

### **CERTIFICATE OF COMPLIANCE**

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Patent Owner's Request for Discretionary Denial and Supporting Brief contains, as measured by the word-processing system used to prepare this paper, 13,982 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: March 13, 2026

By: /s/ Kelsey I. Nix  
Kelsey I. Nix (Registration No. 33,119)  
Counsel for Patent Owner

## **CERTIFICATE OF SERVICE**

I hereby certify that on March 13, 2026, I caused a true and correct copy of the foregoing Patent Owner's Response to be served via email on Petitioner at the following addresses:

Sheila Mortazavi (Registration No. 43,343)  
HAUG PARTNERS LLP  
745 Fifth Avenue, 10th Floor  
New York, New York 10151  
(212) 588-0800  
[smortavazi@haugpartners.com](mailto:smortavazi@haugpartners.com)

George Reitboeck (pro hac vice)  
Mark A. Chapman (pro hac vice)  
HAUG PARTNERS LLP  
745 Fifth Avenue, 10th Floor  
New York, New York 10151  
(212) 588-0800  
[greitboeck@haugpartners.com](mailto:greitboeck@haugpartners.com)  
[mchapman@haugpartners.com](mailto:mchapman@haugpartners.com)

Christopher Gosselin (pro hac vice)  
HAUG PARTNERS LLP  
1717 K Street NW, Suite 9000  
Washington, DC 20006  
(202) 292-1530  
[cgosselin@haugpartners.com](mailto:cgosselin@haugpartners.com)

Respectfully submitted,

Dated: March 13, 2026

By: /s/ Kelsey I. Nix  
Kelsey I. Nix (Registration No. 33,119)  
Counsel for Patent Owner