

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PANDUIT CORP.,
Petitioner,

v.

CORNING OPTICAL COMMUNICATIONS LLC,
Patent Owner.

Case IPR2017-01073
Patent RE45,482 E1

Before JENNIFER S. BISK, DANIEL J. GALLIGAN, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

HUDALLA, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

Petitioner, Panduit Corp. (“Petitioner”), filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 25, 32–34, 36, and 43 of U.S. Patent No. RE45,482 E1 (Ex. 1001, “the ’482 patent”) pursuant to 35 U.S.C. §§ 311–319. Patent Owner, Corning Optical Communications LLC (“Patent Owner”), filed a Preliminary Response (Paper 8, “Prelim. Resp.”) to the Petition. Taking into account the arguments presented in

Patent Owner's Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail in challenging claims 25, 32–34, 36, and 43 of the '482 patent under 35 U.S.C. § 103(a). Pursuant to 35 U.S.C. § 314, we instituted this proceeding on October 2, 2017, as to claims 25, 32–34, 36, and 43 of the '482 patent. Paper 9 ("Dec. on Inst.").

During the course of trial, Patent Owner filed a Patent Owner Response (Paper 14, "PO Resp."), and Petitioner filed a Reply to the Patent Owner Response (Paper 27¹, "Pet. Reply"). An oral hearing was held on June 27, 2018, and a transcript of the hearing is included in the record. Paper 35 ("Tr.").

Petitioner filed a Declaration of Casimer DeCusatis, Ph.D. (Ex. 1003) with its Petition. Patent Owner filed Declarations of Brandon Barnes (Ex. 2002), Sean Kelly (Ex. 2003), and Eric Pearson (Ex. 2004) with its Response. The parties also filed transcripts of the depositions of Dr. DeCusatis (Ex. 2005), Mr. Barnes (Exs. 1023², 2019³), Mr. Kelly (Exs. 1021², 2018³), and Mr. Pearson (Ex. 1022¹).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 25, 32–34, 36, and 43 of the '482 patent. For the reasons discussed

¹ These papers were unsealed pursuant to our Order of June 21, 2018. Paper 33.

² These papers are sealed pursuant to our Order of June 21, 2018. Paper 33.

³ These papers are public versions pursuant to our Order of June 21, 2018. Paper 33.

below, Petitioner has demonstrated by a preponderance of the evidence that claims 25, 32–34, 36, and 43 of the '482 patent are unpatentable.

I. BACKGROUND

A. *Related Proceedings*

The parties identify the following district court case related to the '482 patent (Pet. 1; Paper 4, 1):

Corning Optical Comms. LLC v. Panduit Corp., No. 1:16-cv-00268-GMS (D. Del. filed Apr. 15, 2016).

We also instituted an *inter partes* review of claims 15, 16, 18–24, 49, 50, 63–68, and 71 of the '482 patent in co-pending Case IPR2017-01074.

B. *The '482 patent*

The '482 patent is a reissue of U.S. Patent No. RE42,094, which in turn is a reissue of U.S. Patent No. 6,816,661 (“the '661 patent”). Ex. 1001, [64], 1:29–34. The application that led to the '661 patent was filed on March 22, 2000. *Id.* As discussed below, Petitioner establishes that, at a minimum, its asserted references qualify as prior art relative to that March 22, 2000, filing date.

The '482 patent relates to “multifiber connectors, installation tools and associated methods for validating optical fiber continuity during the connectorization process.” *Id.* at 1:39–42. Figure 1 of the '482 patent is reproduced below.

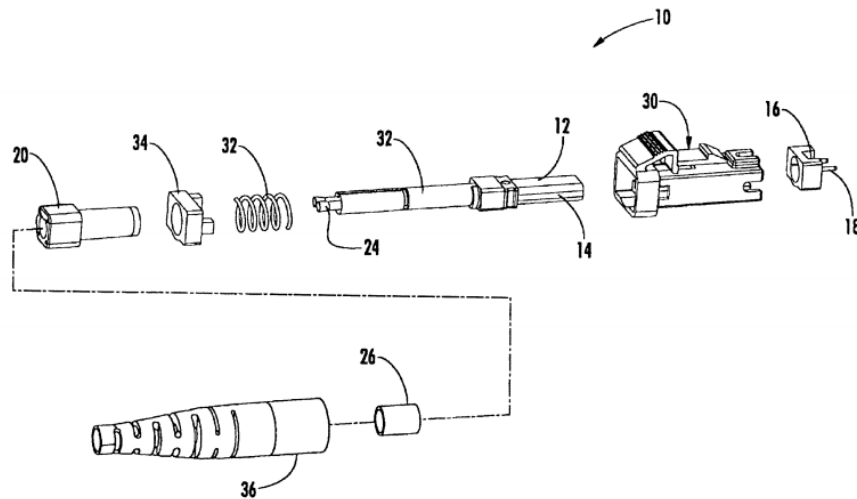


FIG. 1

Figure 1 depicts a multifiber connector 10 (specifically, the MT-RJ UNICAM fiber optic connector) having multifiber ferrule 12, through which a number of optical fiber stubs extend and by which these optical fiber stubs are secured. *Id.* at 7:62–63, 8:41–45. Multifiber connector 10 also includes sleeve/ferrule holder 22,⁴ which defines a passageway for at least partially receiving ferrule 12. *Id.* at 9:6–9. Multifiber connector 10 additionally includes splice components positioned proximate the rear face of the multifiber ferrule for aligning optical field fibers with respective optical fibers stubs. *Id.* at 6:17–21. Cam member 20 is adapted to actuate the splice components by urging the splice components toward one another as the cam member is rotated relative to ferrule holder 22. *Id.* at 9:59–10:1.

Figure 6 of the '482 patent is reproduced below.

⁴ Sleeve/ferrule holder 22 appears to be mismarked with reference numeral 32 in Figure 1.

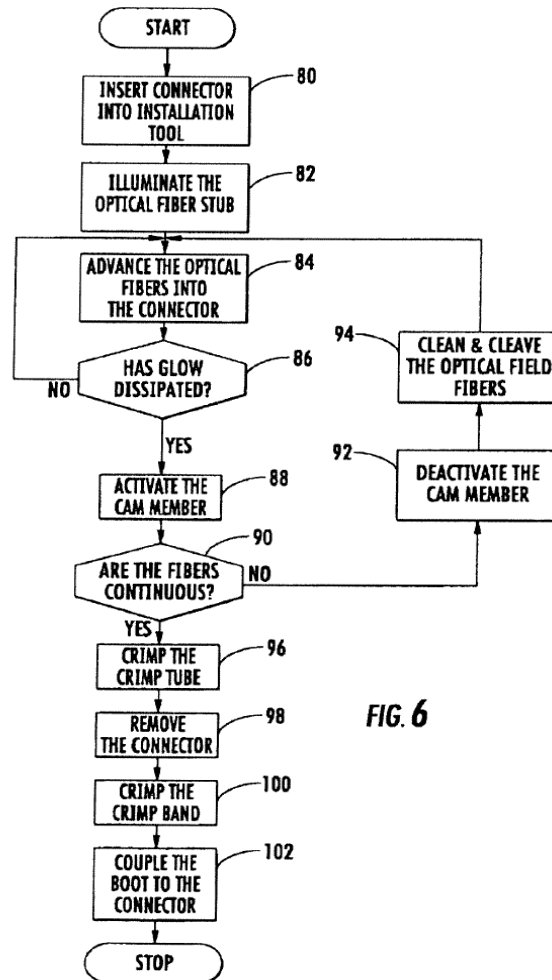


Figure 6 is a flowchart illustrating the operations performed to validate the continuity of optical field fibers with their respective optical fiber stubs. *Id.* at 8:12–15. At block 82, a light source is introduced into the optical fiber stub in each optical fiber stub–optical field fiber pair. *Id.* at 12:58–60. While the optical fiber stubs and optical field fibers are apart, a glow emanates from the end portions of the optical fiber stubs within the splice components. *Id.* at 13:29–33. The optical fiber stubs and optical field fibers are advanced into the connector in block 84. *Id.* at 13:21–25. When the glow has dissipated sufficiently to indicate optical contact between the optical fiber stubs and optical field fibers in block 86, the cam member is

actuated to secure the optical field fibers in position relative to the optical fiber stubs in block 88. *Id.* at 13:52–58. Then, at block 90, fiber optic connector 10 is evaluated to determine if the glow that previously emanated from the optical fiber stub completely disappears, thereby indicating that the optical field fiber and the optical fiber stubs are continuous. *Id.* at 14:1–7. “[C]ontinuity is presumed to have been established once the glow dissipates.” *Id.* at 4:39–40.

If the glow has not been extinguished, the cam member is deactuated at block 92. *Id.* at 14:7–9. Then, the optical field fibers may be recleaved and cleaned (block 94) prior to reinsertion and repositioning in fiber optic connector 10. *Id.* at 14:12–20. The cam member is then reactuated to secure the optical field fibers in position relative to the optical fiber stubs, and continuity can again be tested. *Id.* at 14:26–32. Repositioning and retesting can be repeated as many times as necessary until acceptable continuity is achieved. *Id.* at 14:32–36.

C. Illustrative Claim

Of the challenged claims, claims 25, 32, 36, and 43 of the ’482 patent are independent. Claims 33 and 34 depend directly or indirectly from claim 32. Claim 25 is illustrative of the challenged claims and recites:

25. A method of validating the continuity of an optical field fiber terminated to a fiber optic connector including a ferrule defining at least one bore extending between opposed front and rear faces and an optical fiber stub at least partially disposed

within the bore and having an end portion extending beyond the rear face of the ferrule, the method comprising;

positioning an end portion of the optical field fiber in the fiber optic connector relative to the end portion of the optical fiber stub;

introducing light into at least one the optical field fiber and the optical fiber stub such that a glow emanates from at least one of the end portions of the optical field fiber or the optical fiber stub;

securing the end portion of the optical field fiber relative to the end portion of the optical fiber stub;

evaluating the continuity of the optical field fiber and the optical fiber stub by monitoring the glow emanating from the at least one of the end portions of the optical field fiber or the optical fiber stub;

repositioning and re-securing the end portion of the optical field fiber relative to the end portion of the optical fiber stub when the continuity of the optical field fiber and the optical fiber stub is unacceptable; and re-evaluating the continuity of the optical field fiber and the optical fiber stub after repositioning and re-securing the end portion of the optical field fiber relative to the end portion of the optical fiber stub.

D. The Prior Art

Petitioner relies on the following prior art:

de Jong et al., U.S. Patent No. 5,040,867, filed Mar. 21, 1990, issued Aug. 20, 1991 (Ex. 1004, “de Jong”);

Knecht et al., U.S. Patent No. 4,787,704, filed July 27, 1987, issued Nov. 29, 1988 (Ex. 1005, “Knecht”);⁵

⁵ Although Knecht is not asserted expressly in the enumerated grounds of unpatentability below, Petitioner contends Knecht is incorporated by reference in de Jong and Dean. *See, e.g.*, Pet. 8 (citing Ex. 1004, 2:15–29, 2:64–65, Fig. 2), 20 (citing Ex. 1008, 1:9–10). Patent Owner does not

Siecor[®] CamLite[™] Connector Laser Assembly Aid Instructions, Siecor Recommended Procedure SRP-006-046, Siecor Corporation, Issue 1, 1–7, (April 1991) (Ex. 1006, “CamLite”);

Siecor CamSplice Assembly Manual, Siecor Recommended Procedure SRP-006-038, Siecor Corporation, Issue 6, 1–6 (July 1994) (Ex. 1007, “CamSplice”);

Dean, U.S. Patent No. 4,923,274, filed June 26, 1989, issued May 8, 1990 (Ex. 1008, “Dean”); and

Siecor UniCam[™] SC/ST[®]/FC Connector Assembly Instructions, Siecor[®] Recommended Procedure SRP-006-277, Siecor Corporation, Issue 1, 1–11 (February 1996) (Ex. 1009, “UniCam”).

E. Instituted Grounds

We instituted *inter partes* review of claims 25, 32–34, 36, and 43 of the ’482 patent on the following grounds (Dec. on Inst. 31):

References	Basis	Claims Challenged
CamSplice, CamLite, and de Jong	35 U.S.C. § 103(a)	25, 32, 36, and 43
CamSplice, CamLite, de Jong, and Dean	35 U.S.C. § 103(a)	25, 32, 36, and 43
CamSplice, CamLite, de Jong, and UniCam	35 U.S.C. § 103(a)	32–34
CamSplice, CamLite, de Jong, Dean, and UniCam	35 U.S.C. § 103(a)	32–34

dispute this contention. Based on the disclosure in de Jong and Dean, we agree with Petitioner’s contention and treat the cited portions of Knecht as if they were a part of de Jong and Dean.

F. Claim Interpretation

In an *inter partes* review, we construe claims by applying the broadest reasonable interpretation in light of the specification. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016).

Under the broadest reasonable interpretation standard, and absent any special definitions, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms or phrases must be set forth “with reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

The parties did not propose any claims for construction, and we determine that no terms require explicit construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

II. ANALYSIS

A. Obviousness Ground Based on CamSplice, CamLite, and de Jong

Petitioner contends claims 25, 32, 36, and 43 would have been obvious over CamSplice, CamLite, and de Jong. Pet. 23–86. Petitioner also relies on Knecht based on Knecht’s incorporation into de Jong by reference. *Id.* at 23.

1. *Principles of Law*

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *See Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d at 1480 (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)). We analyze Petitioner’s obviousness grounds with the principles identified above in mind.

2. *Level of Skill in the Art*

Citing testimony from Dr. DeCusatis, Petitioner contends a person of ordinary skill in the art would have had “(a) a Bachelor’s Degree in Mechanical Engineering or similar, with at least 5 years of experience designing or installing fiber optic equipment; or (b) a Master’s Degree in Mechanical Engineering or similar, with at least 3-5 year[s] of experience designing or installing fiber optic equipment.” Pet. 6 (citing Ex. 1003 ¶¶ 9–19). Patent Owner cites Mr. Pearson’s testimony and contends an ordinarily skilled artisan would have had “a bachelor’s degree in mechanical

engineering, materials science, or a related field; and 2 years of experience in fiber optic equipment.” PO Resp. 1 (citing Ex. 2004 ¶¶ 12–14). In particular, Mr. Pearson cites Dr. DeCusatis’s statement that “the level of sophistication in this field” is not “particularly high” as supporting a lower level of practical experience. Ex. 2004 ¶ 14 (quoting Ex. 1003 ¶ 15).

Mr. Pearson is correct that the basis for Dr. DeCusatis’s opinion requiring 3–5 years of experience is unclear. Ex. 2004 ¶ 14. Instead, we credit Mr. Pearson’s statement that “2 years is sufficient for a person to obtain an understanding of cam design and structure typical of those in the field.” *Id.* This also comports with Dr. DeCusatis’s testimony about the level of sophistication in the field. See Ex. 1003 ¶ 15. Accordingly, we apply Patent Owner’s proposed level of ordinary skill for purposes of this Decision. We are satisfied the Patent Owner’s proposal comports with the qualifications a person would have needed to understand and implement the teachings of the ’482 patent and the prior art of record.

3. *CamLite*

The CamLite reference from Siecor Corporation relates to the installation of the CamLite connector, which “incorporates a mechanical splice and a fiber stub within the connector.” Ex. 1006, 1. The installation process includes “cleaving the field fiber, inserting it into the connector until its cleaved end contacts the end of the fiber stub in the connector, and crimping it in place.” *Id.*

The CamLite reference also “describes the use of a helium neon laser as an assembly aid for the CamLite multimode connector.” *Id.* “The laser gives the installer visual feedback when the fibers are successfully butted in

the connector.” *Id.* According to this reference, there will be very little light visible at the rear of the connector housing if the connector has been installed correctly. *Id.* at 7. On the other hand, if there is a bright glow, then the fibers are not touching inside the connector, which will result in high attenuation. *Id.* In the latter scenario, the CamLite reference advises the installer to cut off the connector and to begin again. *Id.*

Petitioner contends “CamLite is a printed publication dated April 1991” that “constitutes prior art to the ’482 Patent under at least 35 U.S.C. § 102(b).” Pet. 13 (citing Ex. 1006, 1, 8). Petitioner notes CamLite includes a 1991 copyright date and is identified on an Information Disclosure Statement from the prosecution of U.S. Patent No. 5,261,020 (“the ’020 patent”). Pet. 13–14 n.1 (citing Ex. 1010, 1; Ex. 1011, 28, 52–59); *see also* Ex. 1011, 1 (listing CamLite as a reference cited on the ’020 patent, which issued on November 9, 1993). Citing testimony from Alan J. McFarland, Petitioner contends CamLite is a “Siecor Recommended Procedure[]” that was “widely disseminated . . . upon publication” and included “with each unit of product sold covered by such a manual,” which made CamLite “freely available without restriction to distributors, customers, and potential customers.” *Id.* at 13 n.1 (citing Ex. 1012 ¶¶ 9–10). Patent Owner does not dispute the prior art status of CamLite.

Based on Petitioner’s evidence, we determine that CamLite qualifies as a prior art printed publication under 35 U.S.C. § 102(b). Petitioner’s evidence establishes that CamLite was publicly disseminated more than one year before the earliest possible effective filing date for the challenged claims of the ’482 patent, which is March 22, 2000. *See* Ex. 1001, [64].

4. *CamSplice*

The CamSplice reference is an assembly manual from Siecor Corporation that “outlines the use of the Siecor CamSplice and TKT-100 Tool Kits for splicing single or multi-mode optical fibers.” Ex. 1007, 1. “The Siecor CamSplice is a mechanical splice which accepts either 250 or [sic] 900 μm fibers.” *Id.* Figure 1 of the CamSplice reference is reproduced below.

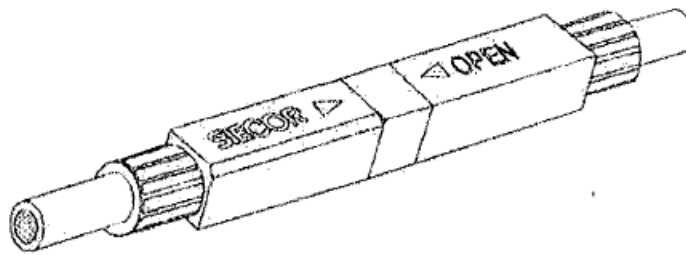


Figure 1

Figure 1 depicts a Siecor CamSplice mechanical splice.

To assemble the CamSplice with a tool, two fibers are slid into the CamSplice; the second fiber is slid “into the CamSplice until it butts against the first fiber.” *Id.* at 3. To actuate the CamSplice, the levers of a tool are rotated down to a horizontal position. *Id.* at 4. If testing of the splice indicates an unacceptable loss of power, the splice may be “tune[d].” *Id.* To tune the splice, the levers are rotated back to a “vertical position to open the splice.” *Id.* Then, the left fiber is tightened into the CamSplice by rotating the left lever by 45°. *Id.* The right fiber is slightly rotated and then rebuted against the left fiber. *Id.* Tuning is repeated until an acceptable loss is achieved and both levers are rotated down fully “to actuate the splice.” *Id.* If this does not result in an acceptable loss, a cleaning procedure can also be performed. *Id.*

Petitioner contends CamSplice “is a printed publication dated July 1994” with “a copyright notice dated 1994,” so “CamSplice . . . constitutes prior art to the ’482 Patent under at least 35 U.S.C. [§] 102(b).” Pet. 16 (citing Ex. 1007, 1, 6). Similar to its showing for the CamLite reference, Petitioner presents testimonial evidence from Alan J. McFarland regarding CamSplice being a “Siecor Recommended Procedure[]” that was widely disseminated upon publication and included with each unit of the product sold. *See id.* at 13–14 n.1 (citing Ex. 1012 ¶¶ 9–10), 16 n.2 (citing Ex. 1012 ¶¶ 12–13). Patent Owner does not dispute the prior art status of CamSplice.

Based on Petitioner’s evidence, we determine that CamSplice qualifies as prior art under 35 U.S.C. § 102(b). Petitioner’s evidence establishes that CamSplice was publicly disseminated more than one year before the earliest possible effective filing date for the challenged claims of the ’482 patent, which is March 22, 2000. *See* Ex. 1001, [64].

5. *Knecht*

Knecht is a patent directed to optical fiber splicing. Ex. 1005, 1:12. Knecht discloses “an optical splice having a frame with a channel; two rods each having a resilient exterior surface disposed in the channel; and a lid adapted to be received on the frame over the channel.” *Id.* at Abstract. Figure 1 of Knecht is reproduced below.

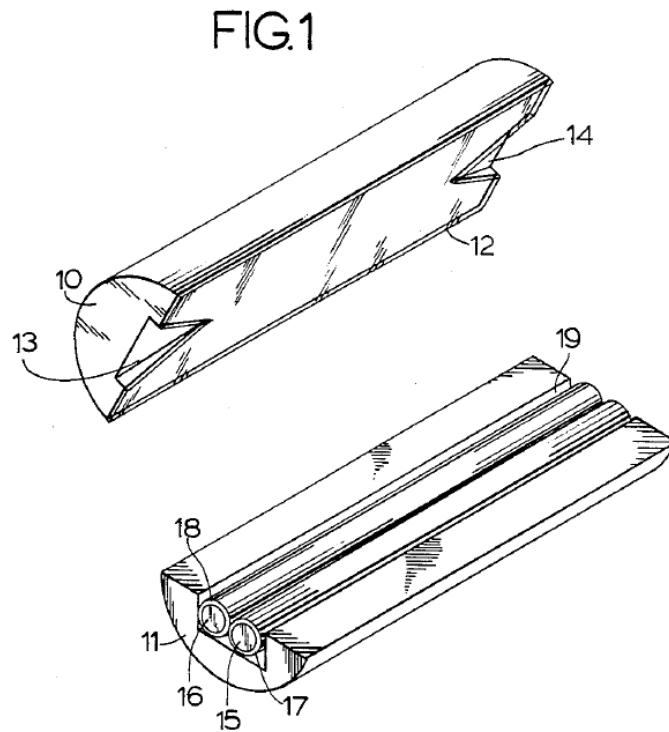


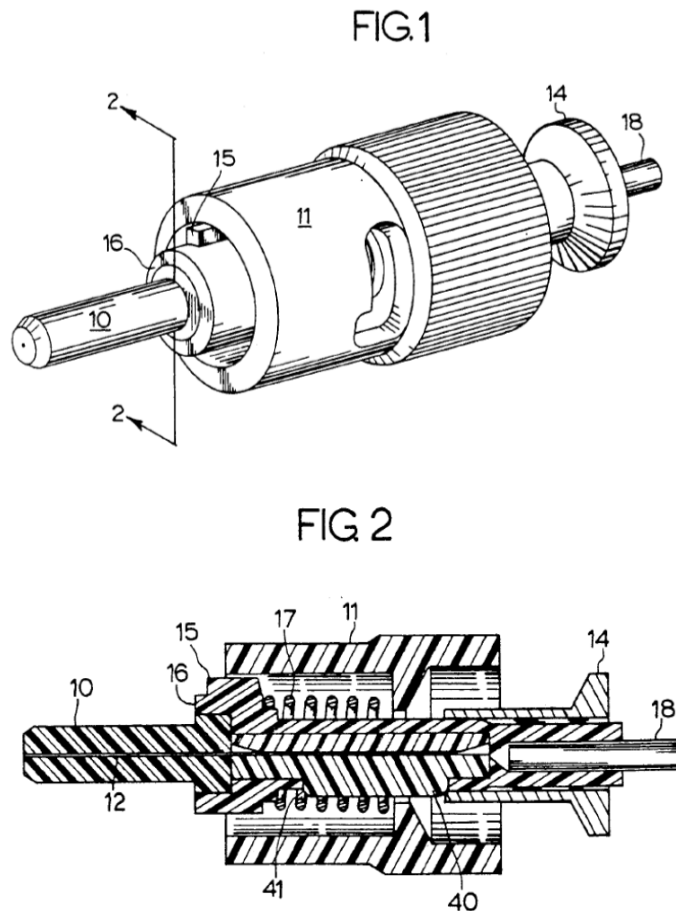
Figure 1 depicts a perspective view of the frame, lid, and rods of an optical splice. *Id.* at 2:67–68; 3:51–52. Plastic lid 10 fits over plastic frame 11, which contains rectangular channel 19. *Id.* at 3:52–54. Glass rods 15 and 16, which are covered by resilient coatings 17 and 18, respectively, rest in channel 19. *Id.* at 3:54–56. Lid 10 also has a resilient coating 12. *Id.* at 3:58.

“In use, two optical fiber terminal end portions are disposed in the groove delimited by the coated rods, the optical fibers being in end wise abutting relationship with each other.” *Id.* at 1:43–46. The frame and lid are compressed into a mating relationship, whereupon pressure from the frame and lid compresses the optical fiber terminal ends within the coated portion of the lid and the coated rods. *Id.* at 1:53–55, 2:10–14. This centers the optical fibers, which may be of different diameters, with each other. *Id.* at 2:14–15.

Knecht is incorporated by reference in de Jong and Dean. Ex. 1004, 2:15–18; Ex. 1008, 1:9–10.

6. *De Jong*

De Jong is a patent directed to a fiber optic connector designed for use in the field with which “the steps to complete connectorization are similar to those for installing a mechanical splice.” Ex. 1004, 1:7, 1:31–36. Figures 1 and 2 of de Jong are reproduced below.



Figures 1 and 2 depict, respectively, perspective and sectional views of the disclosed connector having housing 11. *Id.* at 1:49–54. Optical fiber 12 is placed in ferrule 10. *Id.* at 2:8–9. The centering assembly of Knecht

(described above) is placed in housing 16, and first rib 40 is inserted in housing 16 through slot 41. *Id.* at 2:15–18, 2:21–29.

Figure 7 of de Jong is reproduced below.

FIG 7

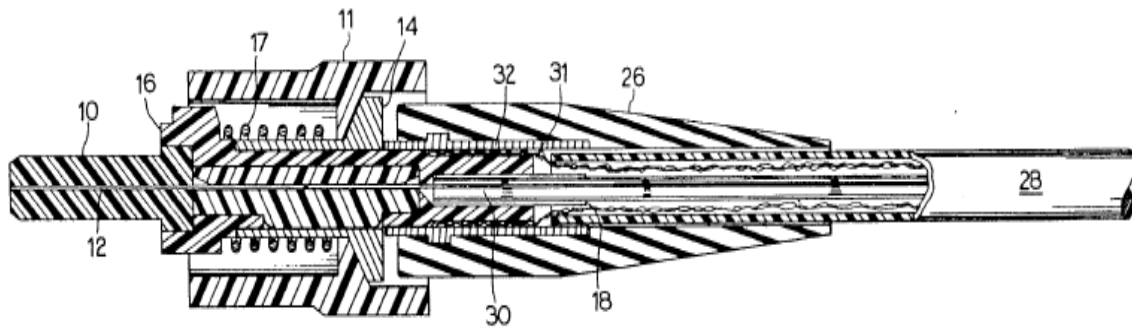


Figure 7 depicts a sectional view of a completed connector. *Id.* at 1:65–66. Prior to completion of the connector, cable 28 is inserted through boot 26 and crimp ring 32. *Id.* at 2:52–53. The end portion of cable 28 is stripped away, revealing buffered optical fiber 30. *Id.* at 2:58–60. Optical fiber 30 is stripped, cleaved, and loaded through crimp tube 18 until it meets the terminal end of optical fiber 12. *Id.* at 2:60–62. Using a tool, slider/locking member 14 is “urged inward to slide to the second position over tab 40, urging tab 40 radially inward through slot 41 to center the connector.” *Id.* at 2:62–65. Crimp ring 32 is then crimped. *Id.* at 3:2.

Petitioner contends de Jong qualifies as prior art under 35 U.S.C. § 102(b) based on its issue date of August 20, 1991. Pet. 8. We agree. De Jong’s issue date of August 20, 1991, is more than one year before the earliest possible effective filing date for the challenged claims of the ’482 patent, which is March 22, 2000. *See* Ex. 1001, [64]; Ex. 1004, [45].

7. *Claim 25*

a. *Comparison of CamSplice, CamLite, de Jong, and Knecht to Claim 25*

In its obviousness analysis for claim 25, Petitioner relies on CamLite for teaching the use of a laser for “validating the continuity of an optical field fiber terminated to a fiber optic connector.” Pet. 23, 31 (citing Ex. 1006, 1). Petitioner further relies on de Jong’s connector having ferrule 10 for teaching the same components in the preamble of claim 25. *Id.* at 23–24, 31 (citing Ex. 1004, 2:8–65, Fig. 2). Citing testimony from Dr. DeCusatis, Petitioner contends de Jong’s “fiber 12 constitutes an optical fiber stub, and the region within the ferrule 10 which receives the fiber 12 (optical fiber stub) constitutes a bore where the stub is disposed.” *Id.* at 31 (citing Ex. 1003 ¶ 45). Petitioner further maps a portion of de Jong’s fiber 12 extending from ferrule 10 into the middle of housing 11 to the recitation in claim 25 of “an end portion extending beyond the rear face of the ferrule.” *Id.* at 24, 31.

For the “positioning an end portion” limitation, Petitioner contends CamLite teaches “a connector with a mechanical splice and a fiber stub, and that installation of an optical field fiber includes inserting the optical field fiber into the connector so that an end of the optical field fiber contacts an end of the optical fiber stub inside the connector.” *Id.* at 25–26, 32 (citing Ex. 1006, 1, 6; Ex. 1003 ¶ 46). Petitioner also contends de Jong teaches this limitation based on testimony from Dr. DeCusatis. *Id.* (citing Ex. 1003 ¶ 47).⁶ For the “introducing light” limitation, Petitioner contends CamLite

⁶ Petitioner cites to Exhibit 1006, but the context makes clear that Petitioner intended to cite paragraph 47 from Dr. DeCusatis’s declaration.

teaches introducing laser light into a fiber stub such that the connection between a field fiber and a fiber stub results in laser light emanating from the field fiber. *Id.* at 25–26 (citing Ex. 1006, 1, 6, 7), 32–33 (citing Ex. 1003 ¶¶ 48–49).

For the “securing the end portion” limitation, Petitioner cites CamLite’s teachings on “actuating a splice after the field fiber contacts the fiber stub in the connector.” *Id.* at 26, 33 (both citing Ex. 1006, 6–7). Petitioner also cites de Jong’s and Knecht’s teachings on centering a field fiber and stub via pressure from Knecht’s frame and lid and the urging of de Jong’s tab 40 radially inward. *Id.* at 26–28 (citing Ex. 1004, Abstract, 2:62–65; Ex. 1005, 2:11–15), 33–35 (citing Ex. 1003 ¶¶ 51, 54; Ex. 1004, Abstract, 2:15–65, Figs. 2, 7; Ex. 1005, 2:11–15). Regarding “evaluating the continuity,” Petitioner contends “CamLite discloses laser light being visible at the rear of the connector when the field fiber contacts the stub inside the connector.” *Id.* at 28 (citing Ex. 1006, 1, 6, 7), 36 (citing Ex. 1003 ¶¶ 56, 57; Ex. 1006, 6, 7).

For the “repositioning and re-securing” limitation, Petitioner relies on CamSplice for teaching an optimization process known as “tuning.” *Id.* at 28–29 (citing Ex. 1007, 4), 38–39 (citing Ex. 1007, 1, 4, Fig. 8). According to Petitioner, tuning involves opening the splice, “rotating a left lever to tighten a left fiber, pulling back on a right fiber, slightly rotating it, and then rebutting it against the left fiber.” *Id.* at 28–29, 38 (both citing Ex. 1007, 4). Thereafter, according to Petitioner, both levers are rotated fully down to activate the splice. *Id.* at 29, 38–39 (both citing Ex. 1007, 4, Fig. 8). Regarding the “re-evaluating the continuity” limitation, Petitioner cites CamSplice for teaching the checking of splice loss after repositioning and

re-securing. *Id.* at 30–31 (citing Ex. 1007, 4), 39–40 (citing Ex. 1003 ¶ 68; Ex. 1007, 4).

Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claim 25. Tr. 17:15–22. Based on our analysis of Petitioner’s contentions and the cited art, we find that the combination of CamSplice, CamLite, de Jong, and Knecht teaches every limitation of claim 25.

b. Rationale for Combining CamSplice, CamLite, and de Jong

According to Petitioner, de Jong (including Knecht) and CamLite “arose under the auspices of the same company, Siecor Corporation,” so an ordinarily skilled artisan “would have been motivated to combine CamLite with de Jong to fully understand the optical connector technology available from Siecor.” Pet. 36 (citing Ex. 1003 ¶ 59). Petitioner also contends that CamLite and de Jong both concern identical optical connector technologies, namely, the Siecor CamLite connector. *Id.* at 37 (citing Ex. 1003 ¶¶ 60–62; Ex. 1004, Fig. 1; Ex. 1006, 1, Fig. 6). Thus, according to Petitioner, an ordinarily skilled artisan “would have been motivated to consider and combine CamLite and de Jong (including Knecht) by a desire to fully understand how to properly use the optical connector technology from Siecor” and “to better assess the installation tools that are appropriate and useful for optical fiber connectorization.” *Id.* at 38 (citing Ex. 1003 ¶¶ 63–64). Petitioner further contends an ordinarily skilled artisan would have had a reasonable expectation that the features of CamLite and de Jong could be combined based on “the extremely close relationship between CamLite and de Jong.” *Id.*

Petitioner further contends it would have been obvious to combine CamSplice with de Jong and CamLite because Siecor Corporation is also responsible for publishing CamSplice. *Id.* at 41. As such, Petitioner contends an ordinarily skilled artisan “would have been motivated to combine the subject matter of these references to achieve enhanced optical connector technologies.” *Id.* (citing Ex. 1003 ¶¶ 70, 83). Petitioner also notes that all three references “address the need for mechanisms and processes that align fibers” and that “achieve the same goal of establishing low-loss optical junctions.” *Id.* (citing Ex. 1003 ¶¶ 71, 84). Petitioner further contends the three references “concern optical connector technologies that are particularly suited for use by a field technician,” so they are “all directed toward solving the same general problem.” *Id.* (citing Ex. 1003 ¶ 72). Petitioner additionally notes similarities in the specific features of the references. *Id.* at 42 (citing Ex. 1003 ¶¶ 73, 74) (noting commonalities with 900 μm fibers, no need to polish fibers, and epoxy-free technologies).

Petitioner also contends an ordinarily skilled artisan would have recognized the problem of cam mechanisms creating fiber junctions that are too lossy. *Id.* at 42 (citing Ex. 1003 ¶ 75). According to Petitioner, known processes for fixing this problem required a technician to cut off the end of an optical fiber, discard the connector, and restart the connectorization process, which is inefficient. *Id.* at 42–43 (citing Ex. 1003 ¶ 75). Petitioner contends an ordinarily skilled artisan faced with this problem would have been motivated to apply one of the finite number of solutions, namely, the use of a reversible, rotationally-actuable cam mechanism as described in

CamSplice. *Id.* at 43 (citing Ex. 1003 ¶ 77); Pet. Reply 9 (citing Ex. 1003 ¶ 77; Ex. 1007, 1, 4).

Patent Owner contends Petitioner has not put forth a sufficient rationale for combining CamSplice and CamLite. PO Resp. 12–21. In particular, Patent Owner contends that certain commonalities between these references do not constitute a reason to combine them. *Id.* at 12–17. Patent Owner also argues that CamLite’s teaching of cutting off a connector in cases of poor coupling would not have motivated an ordinarily skilled artisan to combine CamSplice with CamLite. *Id.* at 17–18. According to Patent Owner, Petitioner’s purported motivation to reach CamLite is merely “a retelling of the ’482 patent’s description of its invention” that is made with hindsight. *Id.* at 17 (citing Ex. 1001, 3:42–48, 4:44–51). Patent Owner also argues that Petitioner provides no evidence to support its contention that CamSplice provides a “ready solution” to CamLite’s deficiencies. *Id.* at 18.

Although we agree with Patent Owner that commonalities alone are not sufficient to support Petitioner’s obviousness rationale, *see Securus Techs., Inc. v. Glob. Tel*Link Corp.*, 701 F. App’x 971, 977 (Fed. Cir. 2017), Petitioner provides a persuasive reason why an ordinarily skilled artisan would have combined CamSplice with CamLite: CamSplice’s reversible, rotationally-actuatable cam would have allowed the artisan to avoid the inefficiencies associated with linearly-actuated cam mechanisms of cutting off the end of an optical fiber, discarding a connector, and restarting the connectorization process when a junction is too lossy. *See* Pet. 38–39, 42–43 (citing, *inter alia*, Ex. 1003 ¶¶ 75, 77). In particular, CamSplice describes a “[t]uning” process to “[o]ptimize the splice” when “the splice loss is NOT acceptable” based on optical power meter or optical

time domain reflectometer (OTDR) testing. Ex. 1007, 2, 4. Importantly, Patent Owner does not dispute that CamSplice teaches this functionality. See Tr. 17:15–22.

Certain other evidence in the record also supports the combination. For example, de Jong states that “[i]n the field, the steps to complete connectorization are similar to those for installing a mechanical splice.” Ex. 1004, 1:34–36 (cited at Pet. Reply 7 n.4). Considering that CamLite is the commercial embodiment of the de Jong patent (see PO Resp. 2), this statement from de Jong corroborates that an ordinarily skilled artisan would have associated prior art for mechanical splices, like CamSplice, with prior art from fiber optic connectors, like CamLite. In addition, the commonalities between CamLite and CamSplice mentioned by Petitioner (e.g., arising from the same entity, being directed to same general problem, having common features, see Pet. 41–42) give additional support to Petitioner’s obviousness rationale.⁷

Patent Owner argues that Petitioner’s description of the problem to be solved is merely a “retelling of the ’482 patent’s description of its invention” made with hindsight. PO Resp. 17. Yet CamLite itself teaches a visual fault

⁷ Even though Patent Owner disputes certain facts undergirding these purported commonalities (PO Resp. 12–17), the evidence supports the commonalities mentioned by Petitioner. For example, Patent Owner argues Petitioner defines the general problem addressed by the references too broadly. *Id.* at 14–15. Yet even if we were to apply Patent Owner’s conception of the problem (see Tr. 23:6–24), Petitioner’s point would still apply. Moreover, Patent Owner acknowledges that neither CamLite nor CamSplice required epoxy and polishing in the field. See PO Resp. 16. Finally, even though CamLite may only accommodate one (and not two) 900 μm fiber, it nonetheless supports this type of fiber. See Ex. 1006, 5.

locator test after crimping that may result in cutting off the connector. Ex. 1006, 7. In particular, the installer is advised to “[c]ut off the connector” and begin the connectorization process again when the visual fault test results in a bright glow at the rear of the connector housing, which is indicative of “high attenuation.” *Id.* Considering that an ordinarily skilled artisan at the time of the ’482 patent would have had 2 years of experience with fiber optic equipment, we are satisfied that such an artisan would have recognized this circumstance to be inefficient. The testimony of both Dr. DeCusatis and Mr. Barnes supports this notion. *See* Ex. 1003 ¶¶ 12, 75; Ex. 1023, 70:10–72:7. Accordingly, we do not agree with Patent Owner’s argument regarding impermissible hindsight.

Patent Owner also argues that “CamSplice and CamLite are substantially different in both design and purpose,” emphasizing CamSplice’s lack of a ferrule and connector and CamSplices’s use of a different type of testing method from that of CamLite. PO Resp. 18–21. Regarding the ferrule and connector, we agree with Petitioner (Pet. Reply 10–11) that this amounts to a bodily incorporation argument. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). In this case, Petitioner cites primarily to CamLite and CamSplice for continuity testing and re-positioning limitations. *See* Pet. 32–36. In addition, Petitioner’s obviousness combination relies on de Jong for teaching the connector and ferrule. *See id.* at 31. Consistent with *Keller*, we are satisfied the combined teachings of the references posited by Petitioner would have suggested the

invention of claim 25 to an ordinarily skilled artisan. *See Keller*, 642 F.2d at 425.

Regarding differences in test methods, Patent Owner's declarants testified that the test method of CamSplice, OTDR, can likewise be applied to connectors, like that of CamLite. Pet. Reply 10 (citing Ex. 1021, 58:11–19, 59:8–10; Ex. 1022, 93:16–94:15). As such, we do not agree that the differences between CamLite's visual fault locator test and CamSplice's OTDR would undermine Petitioner's obviousness combination in the manner suggested by Patent Owner.

For these reasons, we are persuaded by Petitioner's reasons for combining CamSplice, CamLite, and de Jong.

c. Secondary Considerations of Nonobviousness

Patent Owner makes certain allegations regarding secondary considerations of nonobviousness. For objective evidence of secondary considerations to be accorded substantial weight, its proponents must establish a nexus between the evidence and the merits of the claimed invention. *Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 837 (Fed. Cir. 2015).

Patent Owner asserts there was a long-felt need in the field to improve mechanical splice connectors like CamLite. PO Resp. 23 (citing Ex. 2004 ¶ 62). In support of this assertion, Patent Owner cites testimony from Petitioner's declarant, Dr. DeCusatis, stating “a ***long-standing specific problem*** in the field of optical fiber in the context of cam-actuated optical connector technologies is how to efficiently attain the effective coupling of optical fibers.” *Id.* (quoting Ex. 1003 ¶ 12) (emphasis added by Patent

Owner). In light of this testimony, Patent Owner contends Dr. DeCusatis “suggest[s] that the approach of the ’482 patent’s claims is what ultimately met this ‘long-standing specific problem’ in the industry.” *Id.*

Petitioner focuses its analysis on visual fault locator (VFL) capabilities and contends Patent Owner “has failed to establish that VFL was important” and “has put forth no survey data or metrics establishing a long-felt need for VFL-functionality.” Pet. Reply 12. Petitioner also argues that installers do not need to use VFL to check installation, which makes VFL optional. *Id.* at 13 (citing Ex. 1021, 59:17–24; Ex. 1023, 95:22–96). Thus, according to Petitioner, “while VFL may be helpful in assessing continuity by inexperienced installers, it does not satisfy any long-felt need.” *Id.*

Based on deposition testimony from Dr. DeCusatis, Petitioner also argues that ordinarily skilled artisans “are always going to strive for a way to make a better mechanical splice, but will likely never get there because there will always be loss.” *Id.* at 13–14 (citing Ex. 2005, 15:21–16:6, 54:19–55:12).

According to Patent Owner, the purported long-felt need is the very broad notion of efficiently coupling optical fibers. See PO Resp. 23. Yet Petitioner points to testimony showing that VFL capabilities, which are required by the challenged claims, are an optional way to check connections and, therefore, are not necessary to couple optical fibers efficiently. See Pet. Reply 13 (citing Ex. 1021, 59:17–24; Ex. 1023, 95:22–96). This undercuts the notion that the claimed invention meets a long-felt need. We also credit Dr. DeCusatis’s testimony that improving the efficiency of coupling of optical fiber connections is a long-standing issue for which “there’s room for improvement.” Ex. 2005, 54:19–55:12. Thus, even if we were to accept Patent Owner’s definition of the long-felt need, the incremental

improvement of the claimed invention did not fully meet that need. *See id.* As such, we accord Patent Owner’s evidence of long-felt need little weight.

Patent Owner also argues that the failure of its own joint venture, Siecor, and of its competitors to improve upon the CamLite connector is evidence of nonobviousness. PO Resp. 24–25. Patent Owner cites Mr. Barnes’s testimony that VFL checks were “thought to do more harm than good” when applied to CamLite “because light would still be visible even in a good connection, which led to users damaging the fibers and splice components attempting to ‘optimize’ the connection.” *Id.* at 24–25 (citing Ex. 2002 ¶ 33). Thus, Patent Owner states that “the VFL check was ultimately scrapped when Siecor replaced the product line with the first-generation UniCam connectors.” *Id.* at 25 (citing Ex. 2002 ¶ 35).

Even if we were to credit evidence of failure from Patent Owner’s own joint venture, Siecor, to include VFL in CamLite’s replacement as indicative of nonobviousness,⁸ Patent Owner’s evidence does not prove that Siecor failed to make the claimed invention. Instead, Patent Owner merely supports its contention with “institutional knowledge at Siecor/Corning” that VFL in CamLite “would often do more harm than good.” Ex. 2002 ¶ 33. Patent Owner does not explain how a decision not to add VFL based on institutional knowledge is evidence that attempts to add VFL had failed. And, even if we were to believe that Siecor’s institutional knowledge somehow would have discouraged an ordinarily skilled artisan from

⁸ We agree with Petitioner that Patent Owner’s approach is unorthodox. *See* Pet. Reply 15. We need not determine whether Patent Owner’s approach is apt for “failure of others” analysis, because we do not find Patent Owner’s evidence persuasive.

reaching the claimed invention, Patent Owner's present-day product embodying the invention of the '482 patent is susceptible to the same type of installer-discretion problems as CamLite. *See* Ex. 1023, 83:22–84:17. In this sense, the “failure” referenced by Patent Owner still exists today and was not solved by the claimed invention. Thus, we do not credit Siecor's “institutional knowledge” and its attendant decision to exclude VFL from UniCam as demonstrating a “failure of others.”

Patent Owner also contends the invention of the '482 patent “was praised by the industry and commercially successful.” PO Resp. 25. As evidence of such praise, Patent Owner cites a customer's positive comment about using a prototype. *Id.* (citing Ex. 2002 ¶¶ 57–58; Ex. 2012, 4). Patent Owner also cites positive statements in Petitioner's marketing materials about Petitioner's OptiCam product. *Id.* (citing Ex. 2002 ¶¶ 67–75; Ex. 2017). Nevertheless, the only alleged links between this evidence and the claims of the '482 patent are Patent Owner's unsupported assertions that the referenced prototype and the OptiCam product use the '482 patent's approach. *Id.* In the absence of any evidence and analysis establishing that the prototype and the OptiCam product fall within the claimed subject matter of the '482 patent, we accord little weight to Patent Owner's evidence of praise.

Patent Owner's only statement regarding commercial success is the following: “[A]s explained by Sean Kelly, Corning's Vice President of Product Line Management in Optical Solutions, the next-generation UniCam continuity test tool arising from the '482 patent has been a commercially successful product line for Corning since its release.” PO Resp. 25 (citing Ex. 2003 ¶¶ 3–7; Ex. 2013). Petitioner then cites testimony from Messrs.

Barnes and Pearson for the proposition that “[t]his tool has the same design and operation as the tool illustrated in Figure 3 of the ’482 patent.” *Id.* at 25–26 (citing Ex. 2002 ¶¶ 62–66; Ex. 2004 ¶ 65). Petitioner argues Patent Owner has not presented any market share analysis and has failed to establish a nexus between the purported commercial success and the claimed invention. Pet. Reply 14–15.

At oral argument, Patent Owner’s counsel acknowledged that Patent Owner’s data supporting its commercial success assertions are contained in its exhibits and not discussed in its brief. Tr. 34:22–36:12. The data, including raw sales data and a “voice-of-customer report” in Exhibit 2013, are neither analyzed nor even mentioned in Patent Owner’s Response. Instead, Patent Owner relies on a one-sentence conclusory statement ascribed to Mr. Kelly that the UniCam continuity test tool is commercially successful. *See* PO Resp. 25. To the extent Patent Owner relies on the data in Exhibit 2013, which is incorporated via Mr. Kelly’s declaration, this amounts to improper incorporation by reference in violation of 37 C.F.R. § 42.6(a)(3). We decline to root through Patent Owner’s exhibits in an attempt to synthesize data necessary to substantiate commercial success with a nexus to the claimed invention. Accordingly, we agree with Petitioner (Pet. Reply 15) that Patent Owner’s evidence “is deficient on its face” and accord it little weight.

d. Conclusion Regarding Claim 25

As discussed above, Petitioner has established that the combination of CamSplice, CamLite, de Jong, and Knecht teaches all the limitations in claim 25. Petitioner has also provided a persuasive rationale for combining

CamSplice, CamLite, and de Jong. We additionally considered Patent Owner's evidence of secondary considerations above, and we accord it little or no weight. Thus, we determine, by a preponderance of the evidence, that the subject matter of claim 25 would have been obvious over the combination of CamSplice, CamLite, and de Jong under 35 U.S.C. § 103(a).

8. *Claim 32*

Claim 32 is similar in scope to claim 25, and Petitioner's obviousness analysis for claim 32 is similar to that of claim 25. *See* Pet. 62–86. Regarding the limitation “disposing the fiber optic connector within an installation tool,” Petitioner additionally cites the use of installation tools in CamLite, de Jong, and CamSplice. *Id.* at 63–64 (citing Ex. 1006, 5), 73 (citing Ex. 1004, 2:53–54, Fig. 3; Ex. 1006, 5; Ex. 1007, 3). Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claim 32. Tr. 17:15–22. Petitioner's rationale for combining CamSplice, CamLite, and de Jong is the same as that of claim 25. Pet. 79, 82. Patent Owner relies on the same arguments against Petitioner's obviousness rationale and the same evidence of secondary considerations that we have discussed above. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claim 32 would have been obvious over the combination of CamSplice, CamLite, and de Jong under 35 U.S.C. § 103(a).

9. *Claims 36 and 43*

Claims 36 and 43 are similar in scope to claim 25, and Petitioner's obviousness analysis for claims 36 and 43 is similar to that of claim 25. *See* Pet. 44–62. Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claims 36 and 43. Tr. 17:15–22. Petitioner's rationale for combining CamSplice, CamLite, and de Jong is the same as that of claim 25. Pet. 56, 59. Patent Owner relies on the same arguments against Petitioner's obviousness rationale and the same evidence of secondary considerations that we have discussed above. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claims 36 and 43 would have been obvious over the combination of CamSplice, CamLite, and de Jong under 35 U.S.C. § 103(a).

B. *Obviousness Ground Based on CamSplice, CamLite, de Jong, and Dean*

Petitioner contends claims 25, 32, 36, and 43 would have been obvious over CamSplice, CamLite, de Jong, and Dean. Pet. 23–86. Petitioner again relies on Knecht based on Knecht's incorporation into de Jong by reference. *Id.* at 23.

1. *Dean*

Dean is a patent directed to connectors for two optical fibers. Ex. 1008, 1:5–6. Figure 3 of Dean is reproduced below.

effective filing date for the challenged claims of the '482 patent, which is March 22, 2000. *See* Ex. 1001, [64]; Ex. 1008, [45].

2. *Claims 25, 32, 36, and 43*

Petitioner's obviousness analysis for this ground is the same as for the CamSplice–CamLite–de Jong ground except that it adds citations from Dean. For the “repositioning and re-securing” limitation in claim 25, Petitioner additionally relies on Dean's teachings regarding a connector having a rotationally-actuatable and reopenable cam mechanism that imparts force upon the fibers within the connector when the cam is actuated. Pet. 29–30 (citing Ex. 1008, 1:35–49, Fig. 3), 40 (citing Ex. 1003 ¶¶ 78–80). Petitioner additionally cites Dean in a similar manner for the “actuating,” “deactuating,” and “reactuating” limitations in claims 32, 36, and 43. *Id.* at 47–50 (citing Ex. 1008, 1:29–35, Figs. 2, 3), 54–55 (citing Ex. 1003 ¶¶ 156, 182; Ex. 1003, 1:29–35, Fig. 3), 59–60 (citing Ex. 1003 ¶¶ 168–169, 196–197; Ex. 1008, 1:31–49, Fig. 3), 64–67 (citing Ex. 1008, 1:29–49, Figs. 2, 3), 77 (citing Ex. 1003 ¶ 105; Ex. 1008, Fig. 3), 82–83 (citing Ex. 1003 ¶¶ 121–122; Ex. 1008, 1:31–49, Fig. 3). Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claims 25, 32, 36, and 43. Tr. 17:15–22.

Petitioner's reasons for combining Dean with CamSplice, CamLite, and de Jong are similar to and build upon the reasons discussed above for combining CamSplice with de Jong and CamLite. *See id.* at 41–43. Petitioner contends an ordinarily skilled artisan would have found it obvious to combine Dean with de Jong “because both of these references incorporate by reference Knecht and disclose cam-actuated optical technologies that

draw upon Knecht.” *Id.* at 41 (citing Ex. 1003 ¶ 85). In addition, Petitioner contends that an ordinarily skilled artisan would have combined Dean with CamSplice because they both “disclose a connector having a rotationally-actuable cam mechanism that is reopenable.” *Id.* at 42 (citing Ex. 1003 ¶ 86). Petitioner relies on the same rationale for claims 32, 36, and 43. *Id.* at 62 (citing Ex. 1003 ¶¶ 69–77, 82–92, 172, 194, 198–199), 85 (citing Ex. 1003 ¶¶ 82–92, 125).

Patent Owner acknowledges that Dean “just describe[s] . . . the CamSplice . . . device[],” and Patent Owner’s arguments against Petitioner’s reasons for the combination with Dean are the same as those for the CamSplice–CamLite–de Jong ground. *See* PO Resp. 12. We have discussed those arguments above. We also have considered Patent Owner’s evidence of secondary considerations of nonobviousness above, but we accord it little or no weight. *See supra* § II.A.7.c. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claims 25, 32, 36, and 43 would have been obvious over the combination of CamSplice, CamLite, de Jong, and Dean under 35 U.S.C. § 103(a).

C. Obviousness Ground Based on CamSplice, CamLite, de Jong, and UniCam

Petitioner contends that claims 32–34 would have been obvious over CamSplice, CamLite, de Jong, and UniCam. Pet. 71–90. Petitioner additionally relies on Knecht as being incorporated by reference into de Jong. *Id.* at 74.

1. *UniCam*

The UniCam reference from Siecor Corporation provides assembly instructions for the Siecor UniCam connector, which is “a field-installable connector.” Ex. 1009, 1. Figure 5 of UniCam is reproduced below.

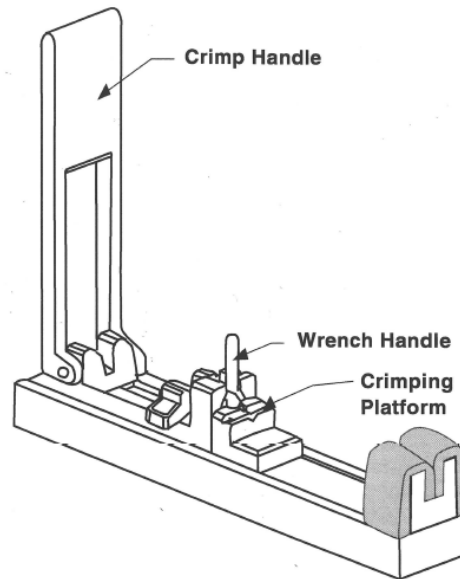


Figure 5 — Installation Tool

Figure 5 depicts an “installation tool . . . designed to position the fiber into the UniCam connector, rotate the cam that aligns the fibers, and crimp the fiber in place.” *Id.* at 4. As part of the installation process, the connector cam is actuated by rotating the wrench handle past 90°. *Id.* at 8, Fig. 18.

Petitioner contends UniCam “is a printed publication dated February 1996” with “a copyright notice dated 1996,” so “UniCam . . . constitutes prior art to the ’482 Patent under at least 35 U.S.C. [§] 102(b).” Pet. 20–21 (citing Ex. 1009, 1, 11). Similar to its showing for the CamLite reference, Petitioner presents testimonial evidence from Alan J. McFarland regarding UniCam being a “Siecor Recommended Procedure[.]” that was widely disseminated upon publication and included with each unit of the product sold. See *id.* at 13–14 n.1 (citing Ex. 1012 ¶¶ 9–10), 20 n.3 (citing Ex. 1012

¶¶ 14–15). Petitioner additionally cites testimony from Donald Warren regarding the purchase of a Siecor TKT-UniCam Termination Kit and about how this purchase came with a copy of the UniCam reference. *Id.* at 20 n.3 (citing Ex. 1013 ¶¶ 2–5). Patent Owner does not dispute the prior art status of UniCam.

Based on Petitioner’s evidence, we determine that UniCam qualifies as a prior art printed publication under 35 U.S.C. § 102(b). Petitioner’s evidence establishes that UniCam was publicly disseminated more than one year before the earliest possible effective filing date for the challenged claims of the ’482 patent, which is March 22, 2000. *See* Ex. 1001.

2. *Claim 32*

Petitioner’s analysis for claim 32 in this ground builds upon its analysis for claim 32 in the CamSplice–CamLite–de Jong ground. For the limitation “disposing the fiber optic connector within an installation tool” in claim 32, Petitioner additionally cites the use of an installation tool in UniCam. Pet. 63–64, 73 (citing Ex. 1009, 1, 4). For “actuating the cam mechanism,” Petitioner additionally cites Unicam for teaching “actuation of a rotationally-actuatable cam mechanism.” *Id.* at 77 (citing Ex. 1009, 1, 4, 8, 9, Fig. 18). Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claim 32. Tr. 17:15–22.

Petitioner’s reasons for combining UniCam with CamSplice, CamLite, and de Jong are similar to and build upon the reasons discussed above for combining CamSplice with de Jong and CamLite. *See* Pet. 82, 85–86. Petitioner contends an ordinarily skilled artisan would have combined UniCam with CamSplice “because each of CamSplice and

UniCam discloses use of a rotationally-actuatable cam mechanism that can be actuated and deactuated.” *Id.* at 85 (citing Ex. 1003 ¶ 128). Petitioner also contends an ordinarily skilled artisan would have been motivated to apply UniCam’s linearly-actuatable cam mechanism in place of the linearly-actuatable cam mechanisms described in CamLite and de Jong to solve the inefficiency problem of cutting off the connector and starting again for a lossy junction. *Id.* at 86 (citing Ex. 1003 ¶¶ 130–131; Ex. 1006, 7).

Patent Owner relies on the same arguments against Petitioner’s reasons for the combination that we discussed above with respect to the CamSplice–CamLite–de Jong ground. We also have considered Patent Owner’s evidence of secondary considerations of nonobviousness above, but we accord it little or no weight. *See supra* § II.A.7.c. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claim 32 would have been obvious over the combination of CamSplice, CamLite, de Jong, and UniCam under 35 U.S.C. § 103(a).

2. *Claim 33*

Claim 33 depends from claim 32 and recites repeating the deactuating, repositioning, reactuating, and re-evaluating steps until the continuity is acceptable. Petitioner cites, *inter alia*, CamSplice’s instructions on tuning including “[p]ull[ing] back on the right fiber, slightly rotat[ing] it, and then rebutt[ing] it against the left fiber” followed by “check[ing] for loss improvement and repeat[ing] this step until you have achieved maximum performance.” *Id.* at 87 (quoting Ex. 1007, 4). In view of this teaching, Petitioner contends it would have been obvious to modify CamSplice’s tuning “so that the rotating of the levers to respectively open/deactuate the

splice not only occurred at the beginning and end, respectively, of the optimizing operation, but also on one or more occasions during that optimizing operation.” *Id.* (citing Ex. 1003 ¶ 134). Patent Owner does not dispute that the art cited by Petitioner teaches the additional limitation of claim 33. Tr. 17:15–22.

Petitioner relies on the same reasons for the combination discussed above with respect to claim 32. Patent Owner relies on the same arguments against Petitioner’s reasons for the combination that we discussed above with respect to the CamSplice–CamLite–de Jong ground. We also have considered Patent Owner’s evidence of secondary considerations of nonobviousness above, but we accord it little or no weight. *See supra* § II.A.7.c. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claim 33 would have been obvious over the combination of CamSplice, CamLite, de Jong, and UniCam under 35 U.S.C. § 103(a).

2. *Claim 34*

Claim 34 depends from claim 33 and recites removing the fiber optic connector from the installation tool once the continuity is acceptable. Petitioner cites CamLite’s teaching on removing the connector from the assembly tool after a laser light test determines that the connector installation was completed correctly. Pet. 90 (citing Ex. 1003 ¶¶ 141–143; Ex. 1006, 7). Patent Owner does not dispute that the art cited by Petitioner teaches the additional limitation of claim 34. Tr. 17:15–22.

Petitioner relies on the same reasons for the combination discussed above with respect to claim 32. Patent Owner relies on the same arguments

against Petitioner's reasons for the combination that we discussed above with respect to the CamSplice–CamLite–de Jong ground. We also have considered Patent Owner's evidence of secondary considerations of nonobviousness above, but we accord it little or no weight. *See supra* § II.A.7.c. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claim 34 would have been obvious over the combination of CamSplice, CamLite, de Jong, and UniCam under 35 U.S.C. § 103(a).

D. Obviousness Ground Based on CamSplice, CamLite, de Jong, Dean, and UniCam

Petitioner contends that claims 32–34 would have been obvious over CamSplice, CamLite, de Jong, Dean, and UniCam. Pet. 71–90. Petitioner additionally relies on Knecht as being incorporated by reference into de Jong. *Id.* at 74.

Similar to the CamSplice–CamLine–de Jong–Dean ground discussed above, Petitioner additionally cites Dean's reopenable, rotationally-actuable cam mechanism for teaching the recited actuating, deactuating, and reactuating steps of claim 32. *Id.* at 64–67, 77, 82–83 (citing Ex. 1008, 1:29–49, Figs. 2, 3). Relative to claim 33, Petitioner cites Dean for teaching that the connector can be repeatedly closed and repeatedly opened. *Id.* at 83 (citing Ex. 1003 ¶¶ 121–122), 89 (citing Ex. 1003 ¶¶ 139–140). Patent Owner does not dispute that the art cited by Petitioner teaches the limitations of claims 32–34. Tr. 17:15–22.

Petitioner's reasons for combining Dean with CamSplice, CamLite, de Jong, and UniCam are similar to and build upon the reasons discussed above for combining CamSplice with CamLite, de Jong, and UniCam and

for combining Dean with CamLite, de Jong, and CamSplice, which we have discussed above. *See* Pet. 82–86. Patent Owner relies on the same arguments against Petitioner’s obviousness rationale and the same evidence of secondary considerations that we have discussed above. On the entire trial record, we determine, by a preponderance of the evidence, that the subject matter of claims 32–34 would have been obvious over the combination of CamSplice, CamLite, de Jong, Dean, and UniCam under 35 U.S.C. § 103(a).

III. CONCLUSION

Petitioner has demonstrated, by a preponderance of the evidence, that:
Claims 25, 32, 36, and 43 are unpatentable under § 103(a) over the combination of CamSplice, CamLite, and de Jong;

Claims 25, 32, 36, and 43 are unpatentable under § 103(a) over the combination of CamSplice, CamLite, de Jong, and Dean;

Claims 32–34 are unpatentable under § 103(a) over the combination of CamSplice, CamLite, de Jong, and UniCam; and

Claims 32–34 are unpatentable under § 103(a) over the combination of CamSplice, CamLite, de Jong, Dean, and UniCam.

IV. ORDER

Accordingly, it is:

ORDERED that claims 25, 32–34, 36, and 43 of the '482 patent are held to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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