

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLTAGE, LLC,
Petitioner,

v.

SHOALS TECHNOLOGIES GROUP, LLC,
Patent Owner.

PGR2024-00022
Patent 11,689,153 B2

Before JEFFREY W. ABRAHAM, AVELYN ROSS, and
MICHAEL G. MCMANUS, *Administrative Patent Judges*.
MCMANUS, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Voltage, LLC (“Petitioner”) filed a Petition (Paper 2, hereinafter “Pet.”) requesting post-grant review of claims 1–24 of U.S. Patent No. 11,689,153 (Ex. 1001, “the ’153 patent”). Shoals Technologies Group, LLC (Patent Owner) filed a Preliminary Response (Paper 8, hereinafter “Prelim. Resp.”).

We have authority to determine whether to institute a post-grant review. *See* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”). A post-grant review may not be instituted “unless. . . the information presented in the petition . . . if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 324(a).

Upon consideration of the evidence and arguments in the Petition (including its supporting testimonial evidence) and the evidence and arguments in the Preliminary Response (including its supporting testimonial evidence), we determine that Petitioner has not demonstrated that the ’153 patent is eligible for post-grant review. Accordingly, we decline to institute a post-grant review of claims 1–24 based on the grounds articulated in the Petition.

B. Real Parties in Interest

Petitioner identifies itself and Ningbo Voltage Smart Production Co., a limited liability company formed under the laws of the People's Republic of China, as real parties in interest. Pet. 3. Patent Owner identifies itself as a real party in interest. Patent Owner Mandatory Notice (Paper 5), 2.

C. Related Matters

The parties identify the following related matters:

International Trade Commission Investigation No. 337-TA-1365, *In the Matter of Certain Photovoltaic Connectors and Components Thereof*; and

Shoals Technologies Group, LLC v. Voltage, LLC et al., Docket No. 1:23-cv-00365 (M.D.N.C.).

Pet. 4; Paper 5, 2.

D. The '153 Patent

The '153 patent is titled "Lead Assembly for Connecting Solar Panel Arrays to Inverter." Ex. 1001, code (54). The '153 patent generally relates to "assemblies for connecting solar panel arrays to an inverter, without the need of a combiner box." *Id.* at 1:22–24.

The '153 patent teaches that, conventionally, solar panels were configured such that each panel was individually connected to a combiner box as shown in the figure below.

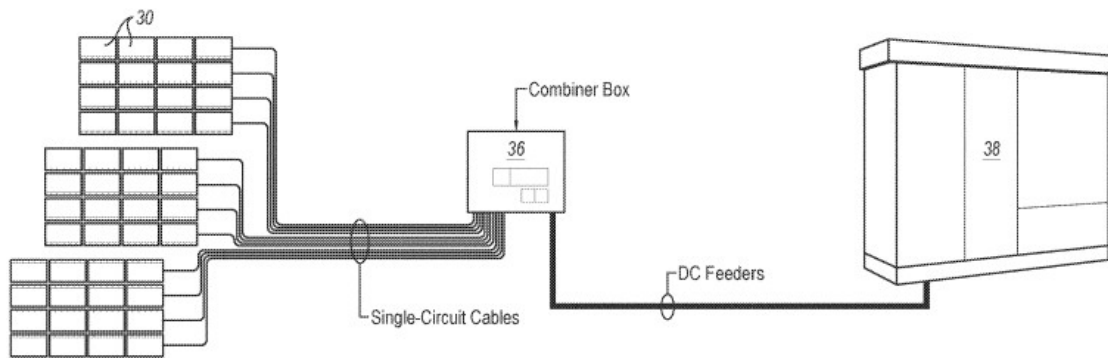


FIG. 1
Prior Art

Figure 1 “depicts a conventional wiring configuration with each solar panel individually wired to a central combiner box.” *Id.* at 2:21–23. The ’153 patent teaches that the arrangement shown in Figure 1 was simplified and improved by the use of a wire harness (34) as shown below.

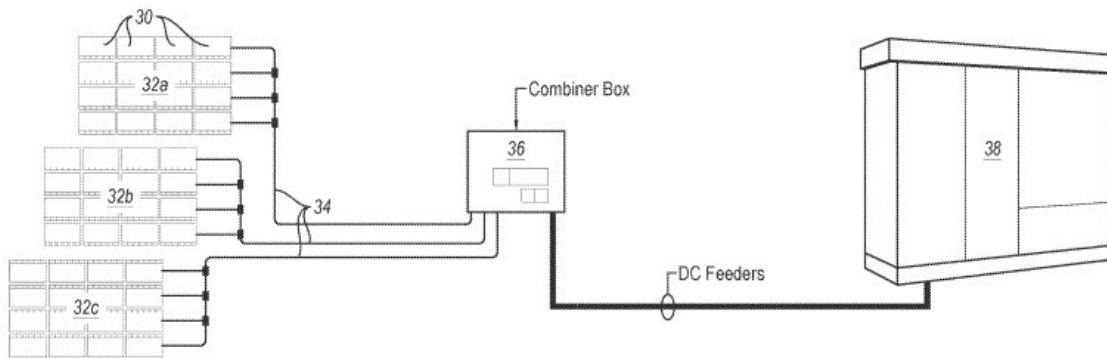


FIG. 2
Prior Art

Figure 2 shows a configuration where “wire harnesses 34 connect multiple solar panels 30 in an array 32, so each array has a single input via wire harness 34 into the combiner box.” *Id.* at 1:37–39. This is taught to be an improvement as it “drastically reduced the number of connections going into a combiner box, which is safer, more reliable, easier to install, maintain and

troubleshoot, and saves money over the conventional configuration of FIG. 1.” *Id.* at 1:40–43. Although the configuration of Figure 2 is taught to be an improvement over that of Figure 1, the ’153 patent indicates that the configuration of Figure 2 is still suboptimal as it requires a combiner box.

Unfortunately, however, a combiner box is still a necessary component in known solar power installations because the energy coming from solar arrays must be combined prior to going into the inverter. Combiner boxes are problematic because they are clumsy, prone to damage and malfunctioning, must be periodically maintained, and require extensive planning and skill for installation. Due to the many connections going into a combiner box, a combiner box cannot easily be moved without disconnecting and reconnecting all the connections and wiring, which requires considerable manpower, danger, and expense.

Id. at 1:44–54.

The ’153 patent teaches a lead assembly where no combiner box is necessary. The lead assembly of the ’153 patent “include[es] at least one drop line joined to a feeder cable at a *nexus*.” *Id.* at 1:63–65. The ’153 patent further teaches that, “[i]n use, the drop line is connected to solar arrays, and the feeder cable is connected to an inverter In this manner a plurality of solar arrays are electrically coupled together, with a common feeder cable connecting them all to the inverter.” *Id.* at 1:64–2:4. The ’153 patent teaches that, in this arrangement, “[a] combiner box is not necessary, and in fact would be redundant.” *Id.* at 2:6–8. A figure depicting an exemplary inventive embodiment is reproduced below.

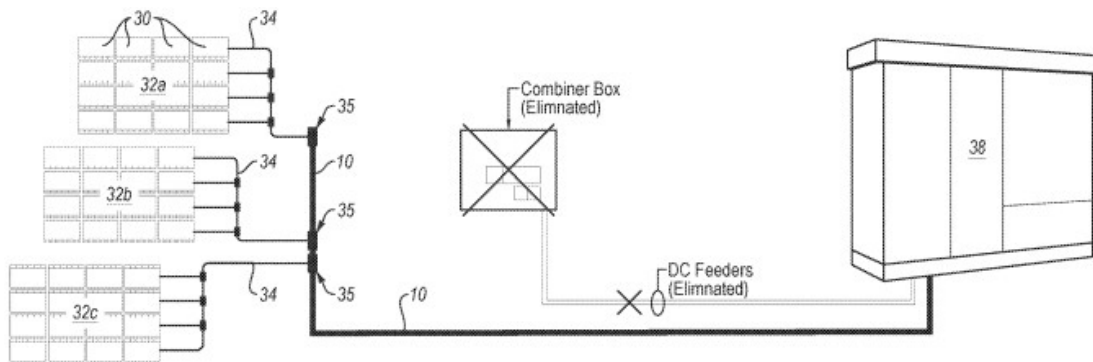


FIG. 3

The '153 patent indicates that Figure 3 “depicts the present invention of a plurality of wire harnesses coupled to a lead assembly that connects to an inverter, with the unnecessary combiner box shown for demonstration only.” *Id.* at 2:30–31. In Figure 3, wire harness 34 includes a number of branches each connecting to one solar panel and a central trunk that terminates in wire harness connector 35. *Id.* at 4:43–45. Figure 3 additionally includes lead assembly 10. An exemplary lead assembly is shown in Figure 5 reproduced, in part, below.

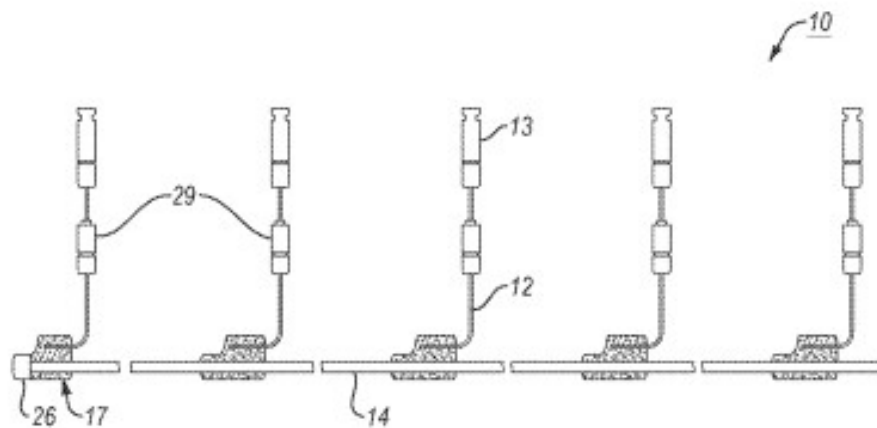
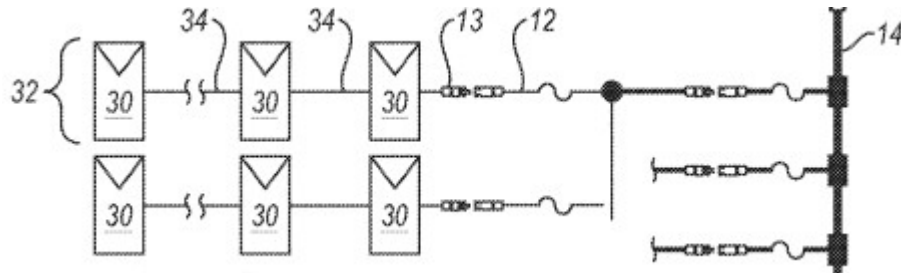


FIG. 5

Figure 5 depicts a lead assembly 10. *Id.* at 2:32. The '153 patent teaches that “lead assembly 10 generally includes drop line 12 joined to feeder cable 14 at joint 17.” Figure 5 further depicts in-line fuses 29 and drop line

connectors 13. In use, each drop line connector 13 is taught to be connected to a wire harness 34 as shown in the figure below.



A portion of Figure 10 is reproduced above. The figure depicts solar panels 30, wire harness 34, drop line connector 13, drop line 12, and feeder cable 14. *Id.* at 4:18–34.

The '153 patent additionally describes the manner in which drop line 12 is connected to feeder cable 14. *Id.* at 4:58–61; 5:61–6:13. The '153 patent teaches that the drop line and feeder cable are electrically coupled at a nexus. *Id.* at 5:61–62. An exemplary coupling is shown in the figure below.

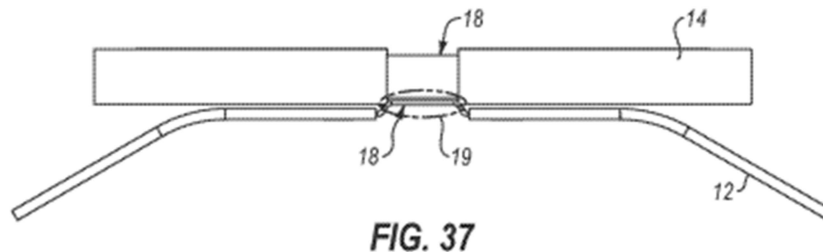


Figure 37 depicts drop line 12 and feeder cable 14 electrically coupled at nexus 19. *Id.* at 5:61–62. Such coupling may be secured by a compression lug (not shown). *Id.* at 5:62–67. Additionally, the '153 patent teaches that the nexus may be surrounded by an undermold which is, in turn, surrounded by an overmold as shown below.

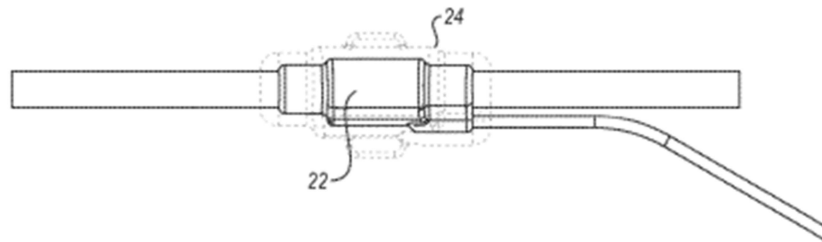


FIG. 48

Figure 48, above, depicts undermold 22 surrounded by overmold 24 (dashed lines). *Id.* at 6:6–7.

The '153 patent teaches that “[t]he resulting assembly is profoundly durable, resistant to environmental factors such as temperature fluctuations, debris, and moisture, and is strong enough to be buried.” *Id.* at 6:10–13.

E. Representative Claim

Claim 1, reproduced below, is representative of the challenged claims.

1. A lead assembly for use in a solar energy installation including:
 - a drop line terminating at a drop line connector, the drop line connector configured to connect with a central trunk of a wire harness, the central trunk of the wire harness having a plurality of branches that each are configured to electrically connect to a separate solar panel contained in an array of a plurality solar panels;
 - a feeder cable electrically coupled to the drop line at a *nexus*;
 - an undermold that fully encases the *nexus*, the undermold further comprising:
 - a first aperture extending completely through the undermold and having a first diameter, wherein the

feeder cable extends through the first aperture along a first longitudinal axis; and

a second aperture extending partially through the undermold and having a second diameter different than the first diameter, wherein the drop line extends from the second aperture along a second longitudinal axis;

a third aperture extending partially through the undermold and having a third diameter different than the first diameter, wherein a second drop line extends from the third aperture along a third longitudinal axis; and

an overmold surrounding the undermold and forming an undermold-overmold interface at an outer surface of the undermold.

F. Evidence Relied Upon

1. Prior Art

Petitioner relies upon the following prior art references in support of its asserted grounds of unpatentability.

Reference	Pub. Date	Exhibit
U.S. Pat. Pub. No. 2011/0209741 A1 (“Solon”)	Sept. 1, 2011	Ex. 1005
U.S. Patent No. 6,268,559 B1 (“Yamawaki”)	July 31, 2001	Ex. 1006
“Solar Line – Photovoltaic Interconnections System – Helios,” Amphenol Industrial Solar Technologies (“Amphenol”)	Nov. 2012	Ex. 1007
Chinese Patent No. 2,785,100Y (“Shao”)	May 31, 2006	Ex. 1008 (translation)/ Ex. 1012 (original)
Japanese Patent No. 4080663 (“Tamura”)	Apr. 23, 2008	Ex. 1009 (translation)/ Ex. 1013 (original)

2. Declaratory Evidence

Petitioner relies on the Declaration of Thomas W. Kenny (Ex. 1003) (“Kenny Declaration”) and the Declaration of Gary Joseph (Ex. 1024) (“Joseph Declaration”).

Patent Owner relies on the Declaration of Joshua Weiner (Ex. 2001) (“Weiner Declaration”).

G. Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following eight grounds.

Ground	Challenged Claim(s)	Statutory Basis	References
1	1, 5–7, 11–14, 16, 17, 21–24	§ 103	Solon, Yamawaki
2	1–3, 5–19, 21–24	§ 103	Amphenol, Shao, Yamawaki
3	20	§ 103	Amphenol, Shao, Yamawaki, Tamura
4	1–3, 5, 6, 8–24	§ 103	Amphenol, Shao, Tamura
5	1–3, 5–10, 12–15, 18, 19, 21–24	§ 103	Yamawaki, Shao
6	11, 16, 17	§ 103	Yamawaki, Shao, Solon
7	20	§ 103	Yamawaki, Shao, Tamura
8	1–24	§ 112(a), (b)	N/A

II. DISCUSSION

A. Eligibility for Post-Grant Review

The post-grant review provisions of section six of the Leahy-Smith America Invents Act (“AIA”), Pub L. No. 112-29, 125 Stat. 284 (2011), apply only to patents subject to the first inventor to file provisions of the AIA. AIA § 6(f)(2)(A). The first inventor to file provisions apply to any application for patent, and to any patent issuing thereon, that contains or contained at any time a claim to an invention that has an effective filing date on or after March 16, 2013. AIA § 3(n)(1). The earliest possible effective filing date of the ’153 patent is September 9, 2015, the application date of Provisional Application No. 14/849,458. Ex. 1001, code (65). Accordingly, it is subject to the first inventor to file provisions of the AIA.

Further, “[a] petition for a post-grant review may only be filed not later than the date that is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be).” 35 U.S.C. § 321(c); *see also* 37 C.F.R. § 42.202(a). The ’153 patent issued on June 27, 2023. Ex. 1001, code (45). The Petition was filed on March 27, 2024. Paper 4, 1. Accordingly, the Petition was filed not later than nine months after the date of the issuance of the ’153 patent and is timely.

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art at the time of the invention “would have a B.S. degree in electrical engineering, mechanical engineering, or an equivalent such as applied physics or general

engineering, and two years of professional experience relating to the design and/or manufacturing of electrical wiring and connectors.” Pet. 13.

Patent Owner argues that one of ordinary skill in the art would have “at least a bachelor’s degree in mechanical or electrical engineering or a related scientific field and at least two years [of] experience working with photovoltaic systems and electrical wiring, with recognition that more education could substitute for experience and that experience combined with training could substitute for formal education.” Prelim. Resp. 3–4 (quoting Ex. 1017 (ITC Claim Construction Order), 12). Thus, the parties only dispute whether a person of ordinary skill in the art must have experience with photovoltaic (solar) systems or whether such experience may be in the broader field of electrical wiring and connectors.

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). “These factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art.” *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

We determine that no express finding is necessary, on the present record, and that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). Further, for purposes of this institution

decision, and on the present record, we determine that the adoption of either party’s proposal regarding requisite work experience would not change our analysis or conclusions.

C. Claim Construction

Patent Office rules provide that “[i]n a post-grant review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.200(b). The rules further provide that “[a]ny prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the post-grant review proceeding will be considered.” *Id.*

The parties put forward several terms for construction. Pet. 14–17; Prelim. Resp. 9–12. With respect to Grounds I through VII, we have determined that no claim constructions are required in order to address the points at issue. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy” (internal citation omitted)). Claim construction is required to resolve certain issues arising in connection with Ground VIII. Accordingly, we construe certain terms in our discussion of that ground, *infra*.

D. Principles of Law

1. Obviousness

“Section 103(a) forbids issuance of a patent when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (internal quotation marks omitted). Obviousness under § 103 is resolved based on 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 ordinary skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

2. Written Description

A patent’s specification is required to “contain a written description of the invention.” 35 U.S.C. § 112(a). “[T]he test for [compliance with the written description requirement of § 112(a)] is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010).

“[T]he invention claimed does not have to be described in *ipsis verbis* in order to satisfy the description requirement of § 112.” *In re Lukach*, 442 F.2d 967, 969 (CCPA 1971). “The knowledge of ordinary artisans may be used to inform what is actually in the specification, but not to teach limitations that are not in the specification, even if those limitations would

be rendered obvious by the disclosure in the specification.” *Rivera v. Int’l Trade Comm’n*, 857 F.3d 1315, 1322 (Fed. Cir. 2017) (internal citation omitted). To satisfy the written description requirement, the disclosure must enable one skilled in the art to “immediately discern the limitation at issue.” *See Waldemar Link GmbH & Co. v. Osteonics Corp.*, 32 F.3d 556, 558 (Fed. Cir. 1994).

3. *Indefiniteness*

A patent claim is indefinite if it fails to provide a person of ordinary skill in the art “reasonable certainty” regarding the scope of the claimed invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). “[A] patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them,” but the Court cautioned that “absolute precision is unattainable.” *Id.* at 899 (internal quotation marks omitted).

E. *Ground 1*

Petitioner argues that claims 1, 5–7, 11–14, 16, 17, and 21–24 would have been obvious over the teachings of Solon and Yamawaki. Pet. 17–41.

1. *Prior Art*

a. Solon

Solon¹ is a United States patent application titled “Solar Energy Wire Harness with In-Line Fuses.” Ex. 1005, code (54). Solon teaches that it relates to “wire harnesses with in-line fuses for electrically coupling solar

¹ The named inventor, Dean Solon, is also the named inventor of the ’153 patent. Ex. 1001, code (54).

panel junction boxes to recombiner boxes.” *Id.* ¶ 2. Solon further indicates that it is directed to “wire harnesses for electrically connecting multiple solar panel junction boxes to a recombiner box.” *Id.* ¶ 13. The figure below depicts a solar energy plant according to Solon.

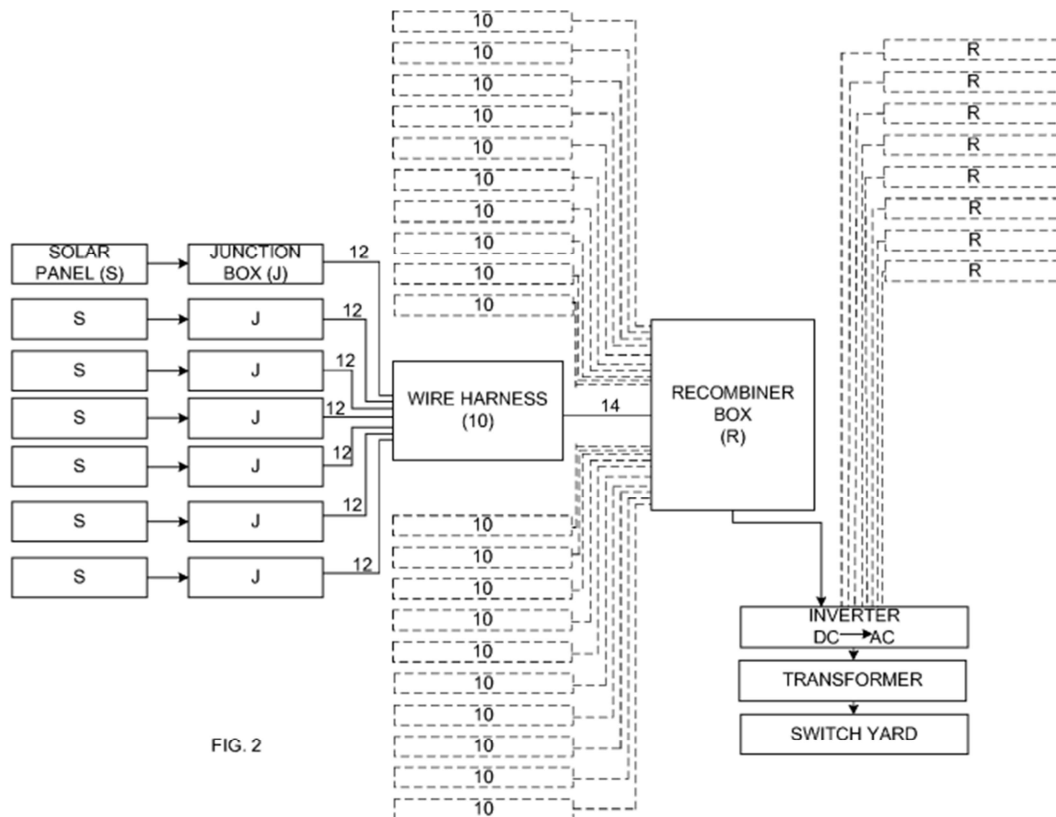


Figure 2 of Solon is taught to show “solar panels S, junction boxes J, wire harnesses 10, recombiner boxes R, inverter (DC to AC), transformer, and switch yard.” *Id.* ¶ 26. It additionally shows branches 12 in communication with the junction boxes J. *Id.* Solon teaches that it is preferred to have 12 branches per wire harness. *Id.* Solon further teaches that “[e]ach wire harness has one trunk 14, which is in communication with a recombiner box R.” *Id.* Wire harness 10 is depicted in greater detail in the figure reproduced below.

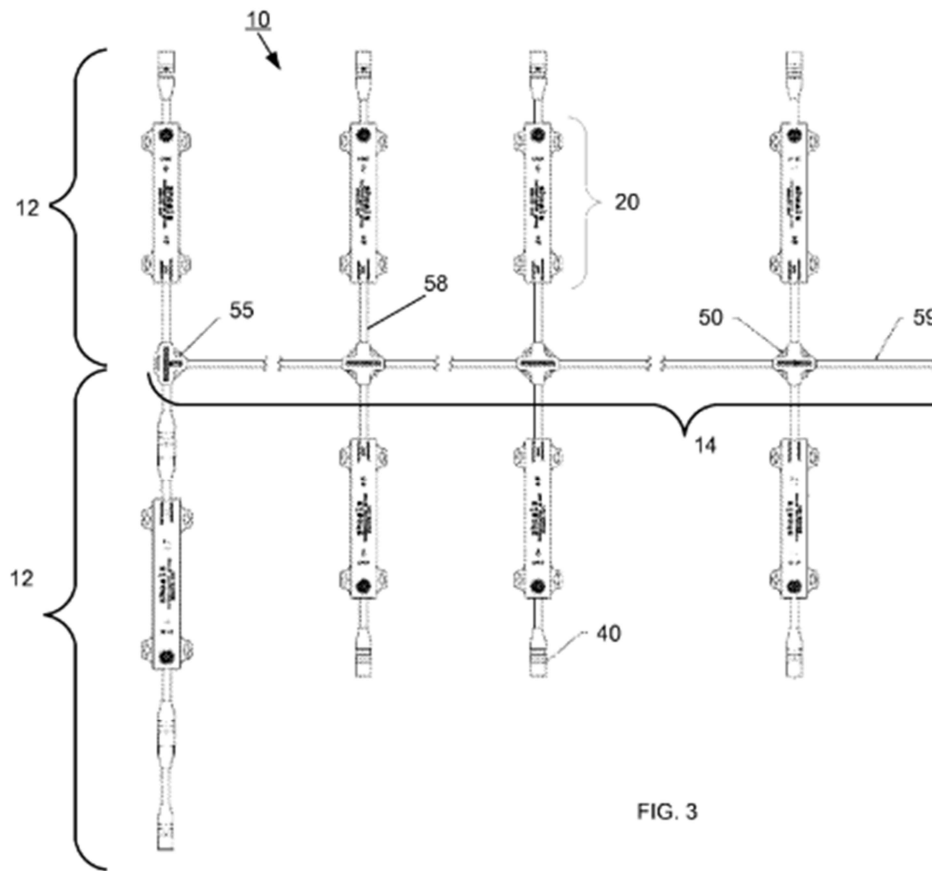


Figure 3 of Solon depicts a wire harness. *Id.* ¶ 16. The wire harness “includes a plurality of branches 12 feeding into one trunk 14.” *Id.* ¶ 29. Solon further teaches as follows:

Branches 12 of wire harness 10 each include one in-line fuse assembly 20, so wire harness 10 includes a plurality of in-line fuse assemblies 20 connected to branch wire 58, which is preferably photovoltaic wire. These assemblies 20 are separated one-from-another by cross joints 50 or tee joints 55. Wire harness 10 is capable of withstanding high voltage, low current power. As used herein, “high voltage, low current power” means a voltage between 500V and 1500V, and a current between 2 A and 60 A.

Id. ¶ 30.

b. Yamawaki

Yamawaki is a United States Patent titled “Photovoltaic Generation System, Wiring Apparatus for Photovoltaic Generation System, and Wiring Structure Therefor.” Ex. 1006, code (54). It states that it generally relates to a solar energy installation having a reduced number of electric wires “and which can be easily laid with a lower possibility of wrong wiring.” *Id.* at 2:45–51. A figure from Yamawaki is reproduced below.

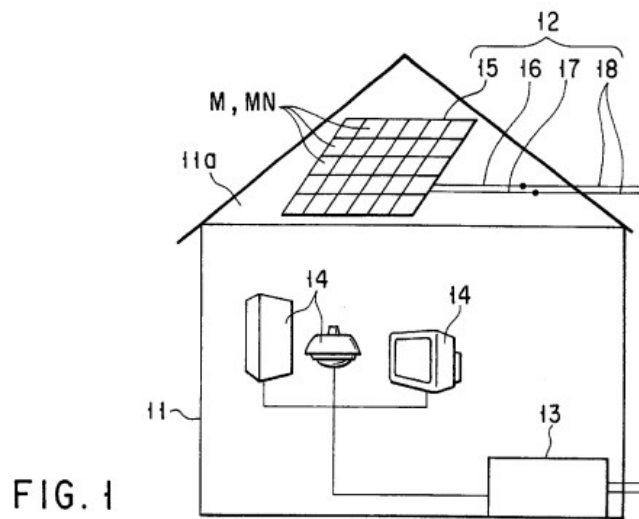


Figure 1 is described as “a conceptual diagram showing the relations between a photovoltaic generation system according to a first embodiment of the present invention.” *Id.* at 6:1–3. The system depicted in Figure 1 shows “photovoltaic panel (so-called solar-cell panel) 15 on a roof 11a, wiring apparatuses 16 and 17 for fetching the output of the panel 15, and a pair of lead-in wires 18 for conducting electric power . . . into the house.” *Id.* at 6:54–59. Yamawaki further teaches that “[t]he photovoltaic panel 15 is composed of a plurality of photovoltaic modules M or photovoltaic module units MN.” *Id.* at 7:62–64.

Yamawaki includes several figures depicting various embodiments of module unit MN and its connection to “wiring apparatuses” 16 and 17. Several of these figures are reproduced below.

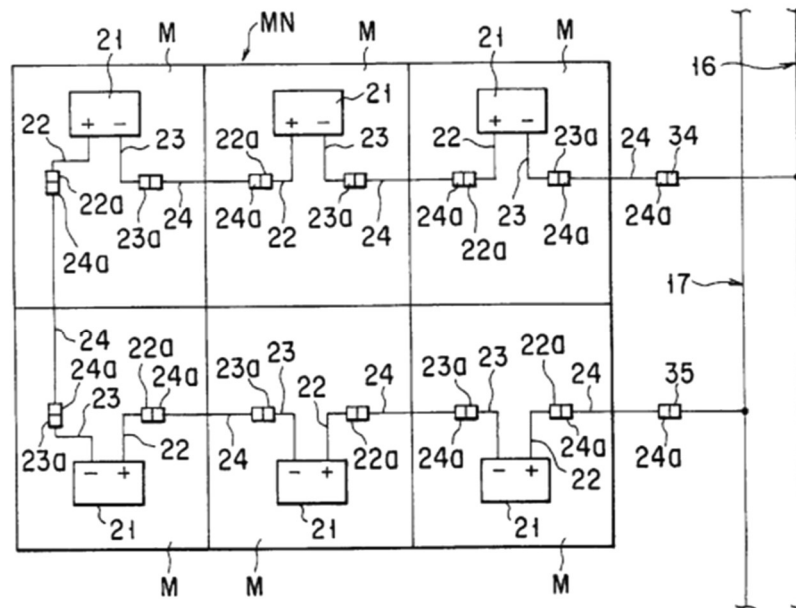


FIG. 4

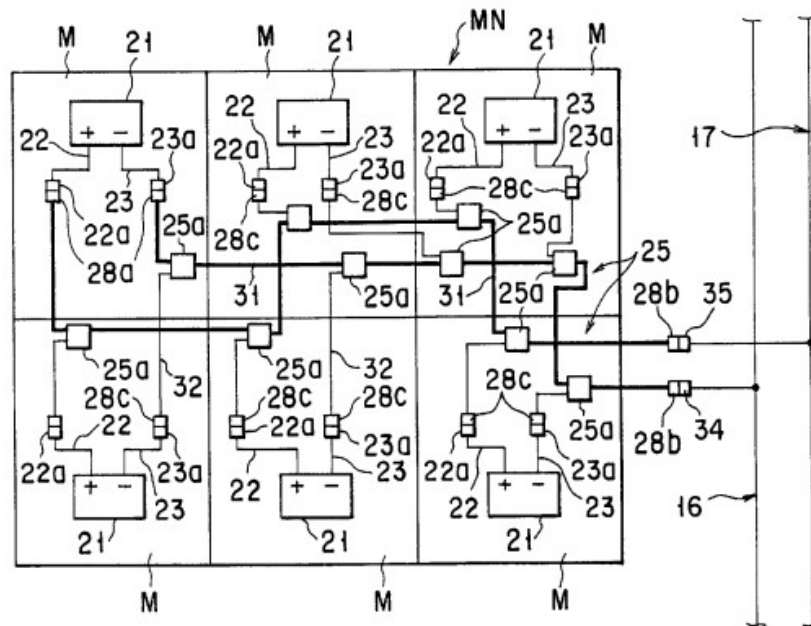


FIG. 5

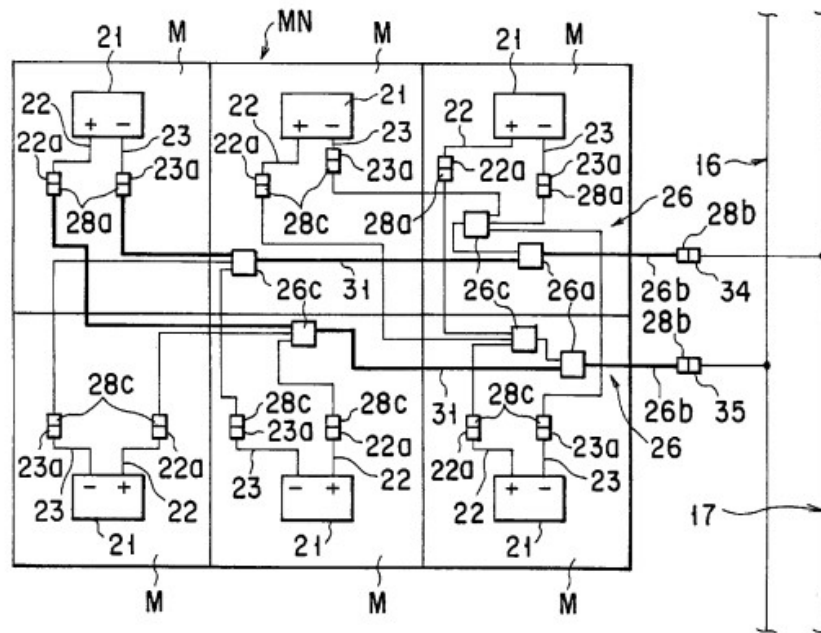


FIG. 6

Figures 4 through 6 are each circuit diagrams showing photovoltaic modules M connected with one another. *Id.* at 6:10–21. Figure 4 shows modules

connected in series, Figure 5 shows modules connected in parallel, and Figure 6 shows modules connected “by means of alternative wiring apparatuses.” *Id.* at 6:18–21. Yamawaki teaches as follows regarding the module units.

The six modules M that constitute each module unit MN are connected in series and/or parallel with one another, depending on the required output. Six modules M shown in FIG. 4 are connected in series with one another by means of connecting wires 24. Six modules M shown in FIG. 5 or 6 are connected in parallel with one another by means of wiring apparatuses 25 or 26. Six modules M shown in FIG. 7 are connected in series and parallel with one another by means of wiring apparatuses 27.

Each of the module units MN shown in FIGS. 4 to 7 has terminal boxes 21 that are mounted individually on the respective back surfaces of the modules M. Each terminal box 21 is provided with two output terminals 22 and 23. The one output terminal 22 is composed of a single-core lead wire led out of the terminal box 21 and a connector 22a connected to the lead wire. Likewise, the other output terminal 23 is composed of a single-core lead wire led out of the terminal box 21 and a connector 23a connected to the lead wire. The output terminals 22 and 23 serve for positive and negative electrodes, respectively.

Id. at 8:16–37.

Yamawaki additionally teaches a junction covered by a molded body.

Id. at 10:17–22. This is depicted in the figures below.

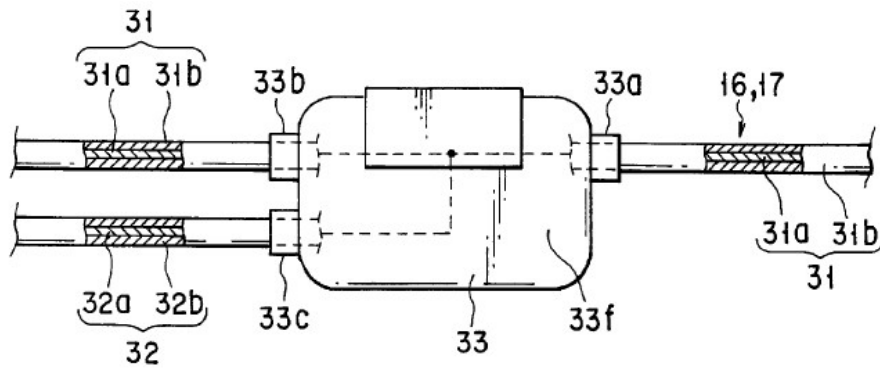


FIG. 9A

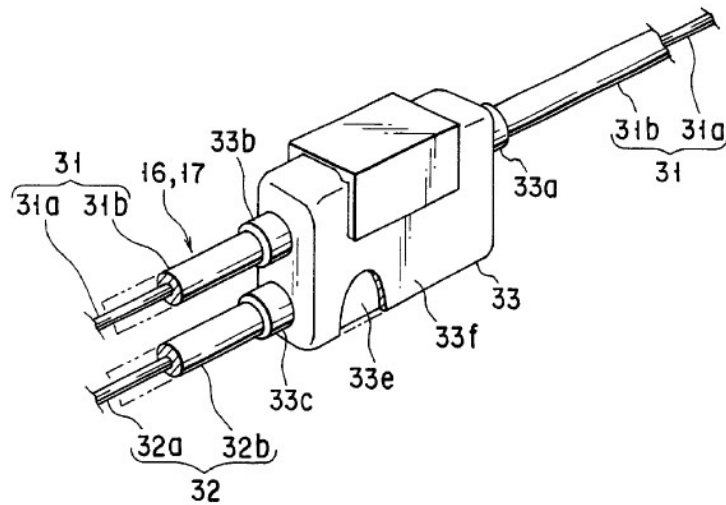


FIG. 9B

Figures 9A and 9B of Yamawaki show “a molded body 33e of an electrically insulating synthetic resin material and a cover member 33f that covers the outer surface of the body 33e.” *Id.* at 10:20–22.

2. Claims at Issue

Petitioner argues that claims 1, 5–7, 11–14, 16, 17, and 21–24 of the '153 patent would have been obvious over the teachings of Solon and Yamawaki. Pet. 17–41.

a. Claim 1

i. Preamble

The preamble of claim 1 recites “[a] lead assembly for use in a solar energy installation.” Ex. 1001, 6:50. Petitioner argues that, to the extent the preamble is limiting, Solon discloses a lead assembly for a solar energy installation. Pet. 19–20 (citing Solon, Figs 2 and 3).

Patent Owner does not specifically address disclosure of the preamble.

ii. Element 1(a)²

Claim 1 further requires as follows:

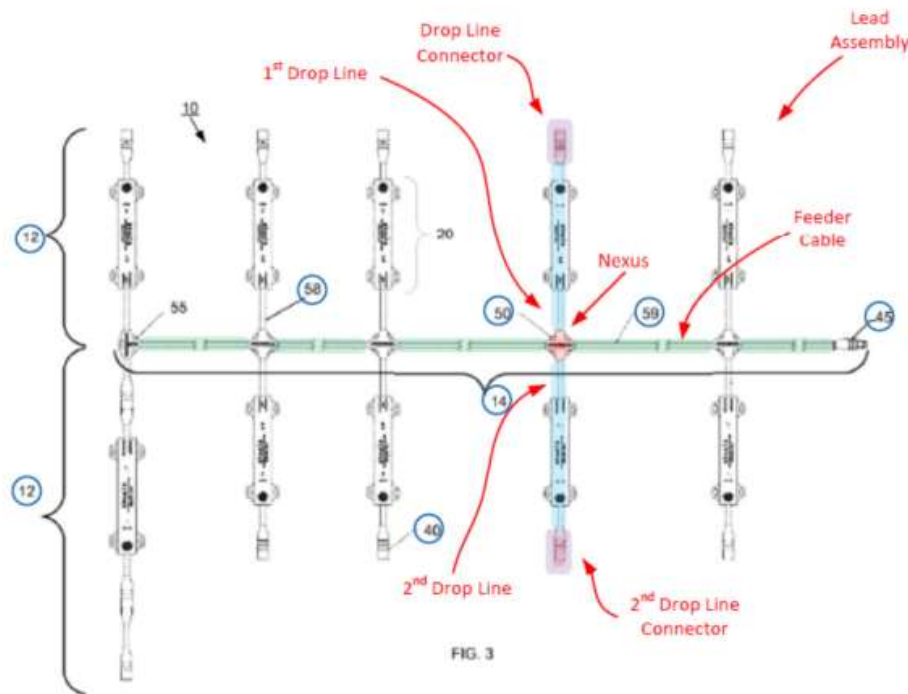
a drop line terminating at a drop line connector, the drop line connector configured to connect with a central trunk of a wire harness, the central trunk of the wire harness having a plurality of branches that each are configured to electrically connect to a separate solar panel contained in an array of a plurality solar panels.

Ex. 1001, 6:52–57.

Petitioner asserts that Solon’s branches 12 satisfy the “drop line” limitation of claim 1 and connector 40 satisfies the “drop line connector” limitation. Pet. 20–21. Petitioner further asserts that Solon’s trunk 14

² For purposes of the present document, the Board adopts the claim element designations set forth in the Petition. *See* Pet. XII.

satisfies the “feeder cable” limitation of claim 1. *Id.* This is shown in Petitioner’s annotated figure, reproduced below.



EX1005, FIG. 3 (1st-annotation)

Pet. 21. The figure above is an annotated version of Solon, Figure 3. The figure indicates Petitioner’s view of Solon’s disclosure of the claimed drop lines, feeder cable, and nexus.

Petitioner states that Solon “does not explicitly state that the drop line connectors from each drop line are connected to a central trunk of another wiring assembly.” *Id.* at 21. Petitioner argues that Yamawaki teaches “coupling wire harnesses to other wire harnesses and cable assemblies to pass current from multiple panels to a common connection.” *Id.* at 21; *see id.* at 21–23 (reproducing Figures 4–6 of Yamawaki).

Petitioner argues that one of ordinary skill in the art would have had reason “to connect wire harnesses of Solon741, electrically connected to

solar panel, to intermediate wire harnesses (i.e., a lead assembly) as taught by Yamawaki as a practical way to combine currents from multiple panels.” Pet. 23.

Patent Owner argues that Petitioner’s proposed hypothetical combination fails to teach several claim elements. Prelim. Resp. 65–71. Patent Owner further asserts that, even if all claim elements were taught, Petitioner has not set forth sufficient reason why a person of ordinary skill in the art would have been motivated to combine the teachings of the two references. *Id.* at 59–65.

Patent Owner argues that, “[i]n a basic sense, each of Solon ’741 and Yamawaki teaches a wire harness, not a lead assembly” and any combination “would result in another wire harness, not the lead assembly of the ’153 patent.” *Id.* at 65. Patent Owner argues that branch wires and central trunk wires are components of a wire harness while drop lines and feeder cables are components of a lead assembly. *Id.* at 65–66. Patent Owner argues that the structures in Solon cited by Petitioner do not teach either a drop line or a feeder cable. *Id.* at 66. Patent Owner directs us to Solon’s teaching that each branch 12 carries the output of only a single solar panel. *Id.* Similarly, Patent Owner asserts that “[t]he wire harness in Yamawaki is functionally equivalent to the wire harness shown, for example, in Fig. 2 of the ’153 patent.” *Id.* at 68.

Patent Owner argues as follows:

The same structure cannot satisfy both the branch limitation and the drop line limitation because the independent claims require different things from each. EX2001, ¶ 161. The branch structures connect solar panels to a wire harness, but the drop line connects that same wire harness to a lead assembly. *Id.* Similarly, the

central trunk of the wire harness cannot simultaneously meet both the central trunk limitation and the feeder cable limitation. *Id.* The independent claims treat them as distinct structures, connected by a drop line.

Id. at 69.

With respect to motivation to combine, Patent Owner further argues that one of skill in the art would not have had reason to combine the teachings of Solon and Yamawaki as Solon relates to utility scale installations while Yamawaki relates to smaller-scale residential solar systems. *Id.* at 64–65.

iii. Element 1(b)

Claim 1 further requires that the lead assembly include “a feeder cable electrically coupled to the drop line at a nexus.” Ex. 1001, 6:58–59. Petitioner relies on Solon’s disclosure of trunk 14 connected to branches 12 at cross joint 50 as teaching the “feeder cable” coupled to a “drop line” at a “nexus.” Pet. 23; *id.* at 24 (*see* annotated Figure 3).

As discussed above, Patent Owner contests the disclosure of both the “feeder cable” limitation and the “drop line” limitation. Prelim. Resp. 65–71.

iv. Element 1(c)

Claim 1 additionally requires as follows:

an undermold that fully encases the nexus, the undermold further comprising:

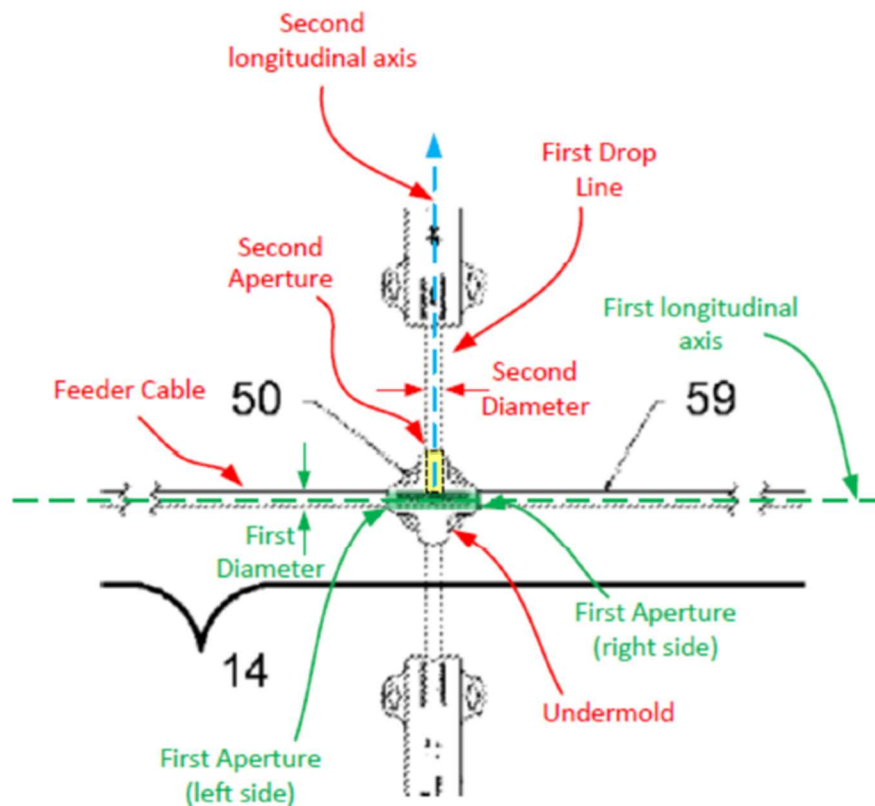
a first aperture extending completely through the undermold and having a first diameter, wherein the feeder cable extends through the first aperture along a first longitudinal axis; and

a second aperture extending partially through the undermold and having a second diameter different than the first diameter, wherein the drop line extends from the second aperture along a second longitudinal axis; [and]

a third aperture extending partially through the undermold and having a third diameter different than the first diameter, wherein a second drop line extends from the third aperture along a third longitudinal axis.

Ex. 1001, 6:60–7:12.

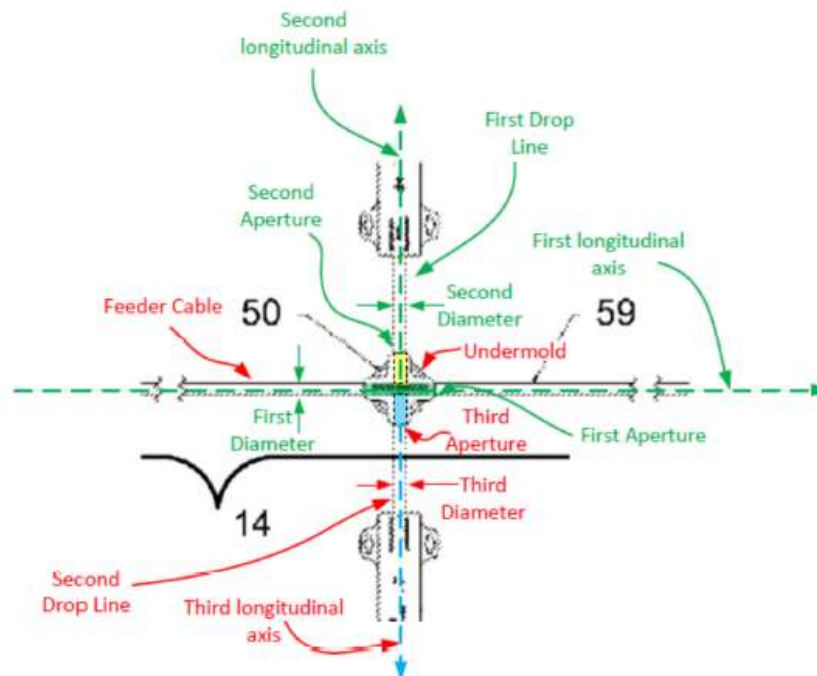
Petitioner includes several annotated excerpts of Solon Figure 3 in its Petition. Pet. 25, 27, 28. One of these annotated figures is reproduced below.



Pet. 27. The figure above is an annotated version of a portion of Solon,
Figure 3. *Id.* As shown in the annotated figure, Petitioner relies on cross

joint 50 in Solon's Figure 3 as teaching the claimed "undermold" encasing the nexus. Pet. 24. Petitioner asserts that Solon "shows a molded junction covering the wires at the nexus." *Id.*

Petitioner relies on the passage of trunk 14 through cross joint 50 (marked in green) as teaching the first aperture through which the feeder cable extends. *Id.* at 25. Petitioner asserts that, in the figure above, the passage of branch wire 58 (blue dotted line) into cross joint 50 (yellow) teaches the second aperture. Petitioner further asserts that the branch wire protruding downward from the cross joint teaches the third aperture. This is shown in blue in the diagram below.



Pet. 28 (annotated Figure 3 of Solon).

Patent Owner does not substantively contest the teaching of element 1(c).

v. Element 1(d)

Claim element 1(d) requires “an overmold surrounding the undermold and forming an undermold-overmold interface at an outer surface of the undermold.” Ex. 1001, 7:9–11. Petitioner relies on Yamawaki as teaching this limitation. Pet. at 29. Petitioner asserts that “cover member” 33f shown in Yamawaki’s Figure 9B satisfies the overmold limitation. Petitioner’s annotated Figure 9B of Yamawaki is reproduced below.

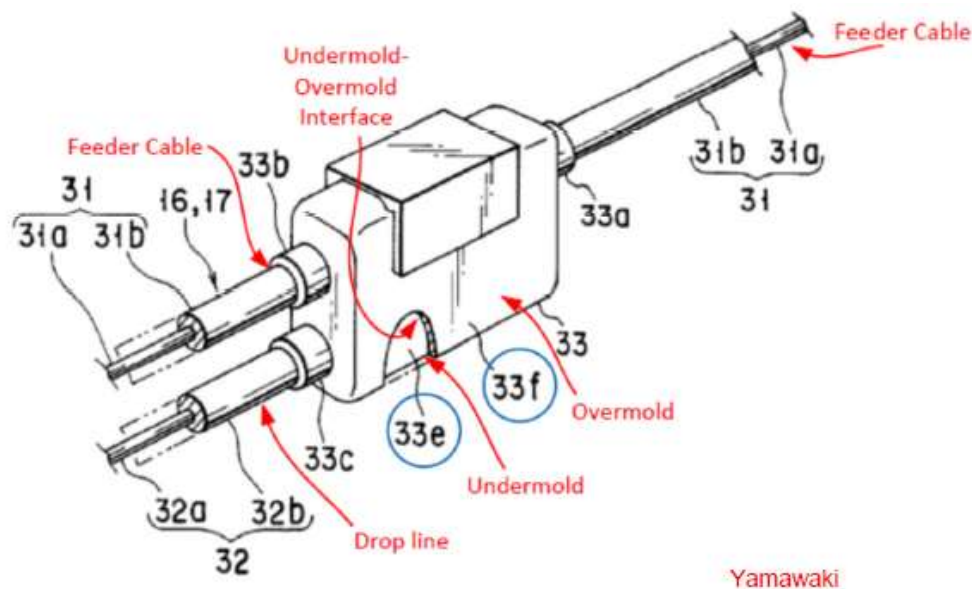


Figure 9B depicts branch junction 33. The figure shows “molded body 33e of an electrically insulating synthetic resin material and a cover member 33f that covers the outer surface of the body 33e.” Ex. 1006, 10:20–23.

Petitioner argues that a “POSITA [i.e., a person of ordinary skill in the art] would have been motivated to apply the overmolding taught in Yamawaki to the undermold of the nexus in Solon741 to better protect the electrical connections from the environment (e.g., waterproofing).” Pet. 29.

Patent Owner does not contest the teachings cited with respect to claim element 1(d), but argues that Petitioner has not adequately shown that

a person of ordinary skill in the art would have had reason to combine the teachings of the references as proposed by Petitioner. Prelim. Resp. 59–63.

vi. Analysis

Patent Owner contests Petitioner’s showing with respect to

1. Whether Solon teaches a drop line and feeder cable (claim elements 1(a) and (b));
2. Whether Petitioner has shown an adequate reason to combine the teachings of Yamawaki regarding “coupling wire harnesses to other wire harnesses and cable assemblies to pass current from multiple panels to a common connection” (Pet. 21) with the cited teachings of Solon (claim element 1(a)); and
- 3) Whether Petitioner has shown an adequate reason to combine the teachings of Yamawaki regarding its “cover member” with the cross joint of Solon (claim element 1(d)).

Independent of Patent Owner’s arguments, Petitioner bears “the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Petitioner’s explanation of the teachings of Yamawaki bearing upon claim element 1(a) is a single sentence which states, in relevant part, that “Yamawaki teaches coupling wire harnesses to other wire harnesses and cable assemblies to pass current from multiple panels to a common connection (i.e., central trunk), such as the inverter or junction box.” Pet. 21. This is followed by several figures from Yamawaki but no explanation thereof. *Id.* at 22–23.

Obviousness may not be shown “by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning.” *InTouch Techs., Inc. v. VGo Communs., Inc.*, 751 F.3d 1327, 1347, 1351 (Fed. Cir. 2014). Here, Petitioner fails to supply the articulated reasoning and rational underpinning necessary to inform the Board of the nature of the proposed hypothetical combination.

Further, there is ambiguity regarding Petitioner’s characterization of Yamawaki’s teachings. Petitioner indicates that Yamawaki teaches to couple harnesses to pass the current from “multiple panels” (Pet. 21) yet the figures cited in support appear to depict a single panel made up of several module units MN which are, in turn, made up of several modules M (*see* Ex. 1006, 8:12–26). Petitioner bears the burden of resolving such ambiguity. *See* 35 U.S.C. § 322(a)(3) (requiring post-grant review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). Here, Petitioner has not satisfactorily done so.

Petitioner further posits that one of ordinary skill would have had reason to connect the wire harnesses of Solon to “intermediate wire harnesses (i.e., a lead assembly) as taught by Yamawaki as a practical way to combine currents from multiple panels.” Pet. 23. This does not describe any specific combination nor any specific motivation to make the proposed combination. Petitioner’s other stated bases for combination (“additional guidance,” *id.* at 18, and “simplification,” *id.* at 19) are similarly general in nature. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“Obviousness 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.”).

In view of all of the foregoing, on the present record Petitioner has not shown that it is more likely than not that claim 1 is unpatentable for the reasons stated in connection with Ground 1.

b. Claims 5–7, 11–14, 16, 17, and 21–24

Petitioner asserts that claims 5–7, 11–14, 16, 17, and 21–24 would have been obvious in view of the teachings of Solon and Yamawaki. Pet. 30–41. Patent Owner does not address these claims on an individual basis.

Claims 5–7, 11–14, 16, and 17 depend from claim 1. Petitioner does not supplement its analysis with respect to claim 1 in arguing that claims 5–7, 11–14, 16, and 17 would have been obvious. Pet. 30–38. Accordingly, on the present record, Petitioner has not shown that it is more likely than not that these dependent claims are unpatentable.

Claims 21 and 24 are independent claims. Ex. 1001, 8:5–33, 8:43–9:4. Claims 22 and 23 depend from Claim 21. *Id.* at 8:34–42. In support of its allegations that these claims would have been unpatentable, Petitioner relies on, and incorporates, its arguments set forth with respect to claim elements 1(a) and 1(b). *Id.* at 38–41. Accordingly, for the reasons discussed above with regard to claim 1, on the present record, Petitioner has not shown that it is more likely than not that these claims are unpatentable.

c. Conclusion with Respect to Ground I

Petitioner has not shown that it is more likely than not that claims 1, 5–7, 11–14, 16, 17, and 21–24 would have been unpatentable over the teachings of Solon and Yamawaki.

F. Ground 2

Petitioner argues that claims 1–3, 5–19, and 21–24 would have been obvious over the teachings of Amphenol (Ex. 1007), Shao (Ex. 1008), and Yamawaki (Ex. 1006). Pet. 41–74.

1. Prior Art

a. Amphenol

Amphenol is a catalog titled “Solar Line Photovoltaic Interconnections System.” Ex. 1007, 1.³ On its cover page Amphenol states “Amphenol Industrial Solar Technologies” as shown below.



On what appears to be the back cover, Amphenol states “ICS 18-6 Release Date: November, 2012,” as shown below.

³ For purposes of the present document, the Panel will refer to the pagination applied to Amphenol by Petitioner rather than the original pagination.



Ex. 1007, 1 (annotated with red box). Amphenol further states as follows:

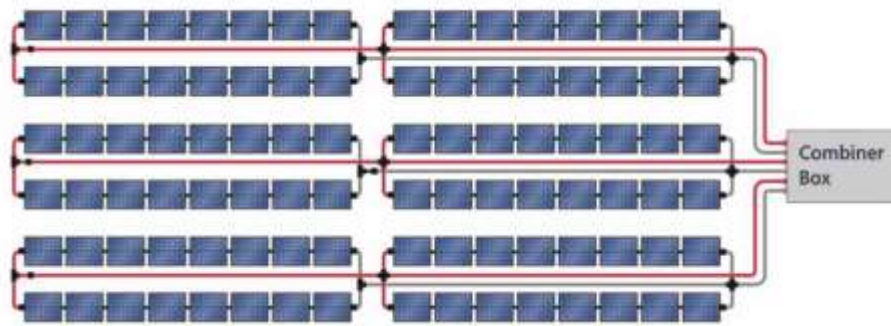
Amphenol Corporation is one of the world's largest interconnect manufacturers. Founded in 1932, Amphenol designs, manufactures, and markets electrical, electronic, and fiber optic connectors, interconnect systems, and coaxial and specialty cables.

Amphenol products are engineered and manufactured in the Americas, Europe, Asia, and Africa and sold by a worldwide sale and marketing organization. Amphenol has a diversified presence as a leader in high growth areas of the interconnect industry and provides solutions for customers in the automotive, broadband, industrial, information technology and data communications, military and aerospace, mobile devices, and mobile networks markets.

Id. at 2.

Petitioner offers the Declaration of Gary Joseph as evidence of the public availability of Amphenol prior to the critical date. Ex. 1024.

Amphenol includes the following diagram which Petitioner describes as a “solar energy installation.”



Ex. 1007, 5; Pet. 48. Amphenol lacks any explanatory text describing this diagram. Ex. 1007, 5. Amphenol additionally includes the following diagram.



Id. at 13. Amphenol includes the heading “T/X-Junction cable assembly ordering configuration” over this, and one other, diagram. *Id.*

Amphenol also includes the diagram below.



Id. at 5. The four structures depicted above fall under the heading “Cable Assy and Diversity Junctions.” *Id.*

b. Shao

Shao is a Chinese patent titled “Power Cable with Bidirectional K-Shaped Branch.” Ex. 1008, code (54). Shao has a filing date of January 13, 2005 and an issue date of May 31, 2006. *Id.*, code (22), (45).

Shao describes its invention as follows:

a power cable with a bidirectional K-shaped branch, which comprises a trunk conductor, branch-line conductors, a trunk insulation layer, branch-line insulation layers, a connector and an outer sheath, wherein the power cable is provided with the K-shaped branch connector, one joint and two branch-line conductor out-leads are provided for the trunk conductor and the branch-line conductors, and directions of the branch-line conductor out-leads are opposite.

Id. at 4–5. Figures 1 and 2 of Shao are reproduced below.

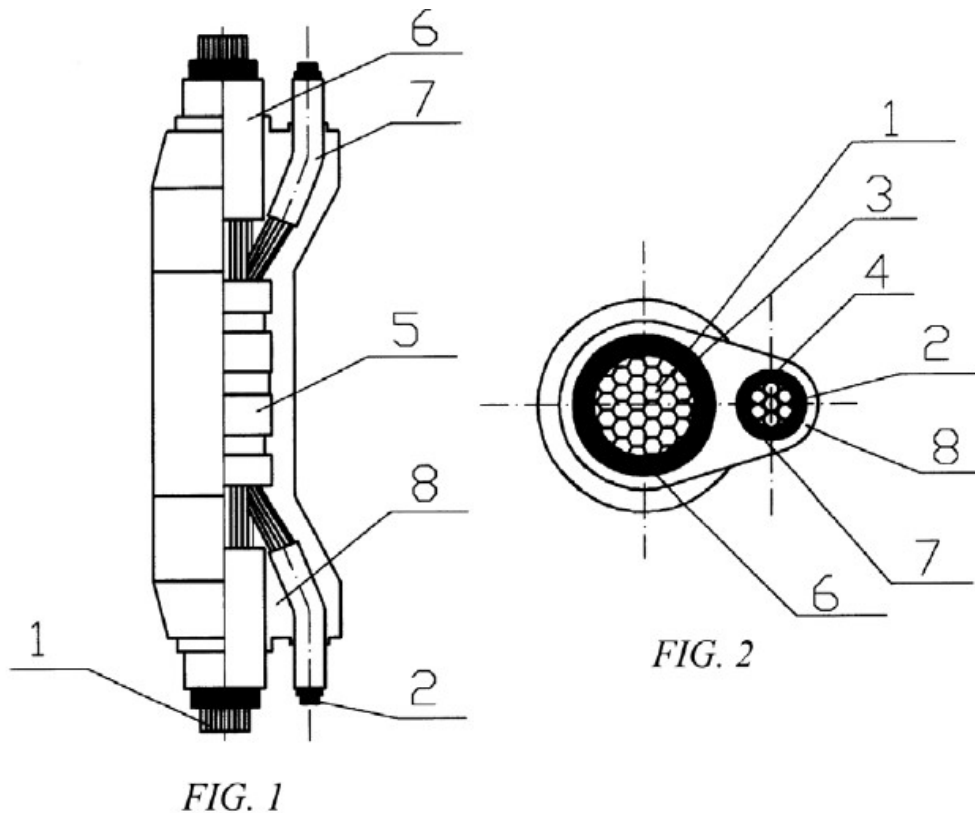


Figure 1 depicts a power cable with a bidirectional K-shaped branch. *Id.* at 4–5. Figure 2 shows the same structure in cross-section. *Id.* at 6. The device of Shao includes trunk conductor 1, branch-line conductors 2, and connector 5. *Id.* at 6.

2. Claims at Issue

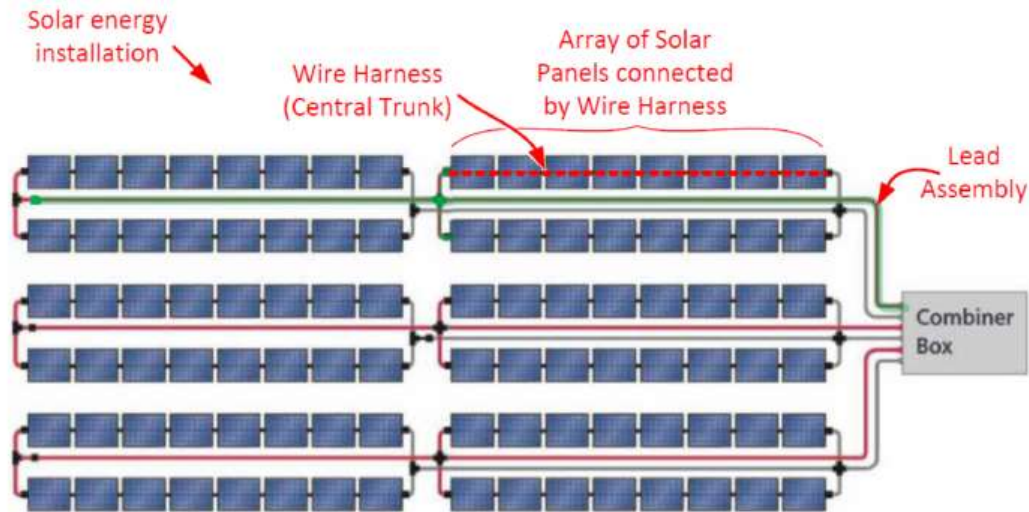
Claims 1–3, 5–19, and 21–24 are subject to Ground II. Pet. 48–74.

a. Claim 1

i. Preamble

The preamble of claim 1 recites “[a] lead assembly for use in a solar energy installation.” Ex. 1001, 6:50 (claim 1). Petitioner argues that

Amphenol discloses a lead assembly as annotated in green in the figure below.



EX1007, p.5, middle image (1st-annotation)

Pet. 48.

Patent Owner argues that the Amphenol structure is not a lead assembly as discussed below with respect to claim element 1(a). Prelim. Resp. 34–39.

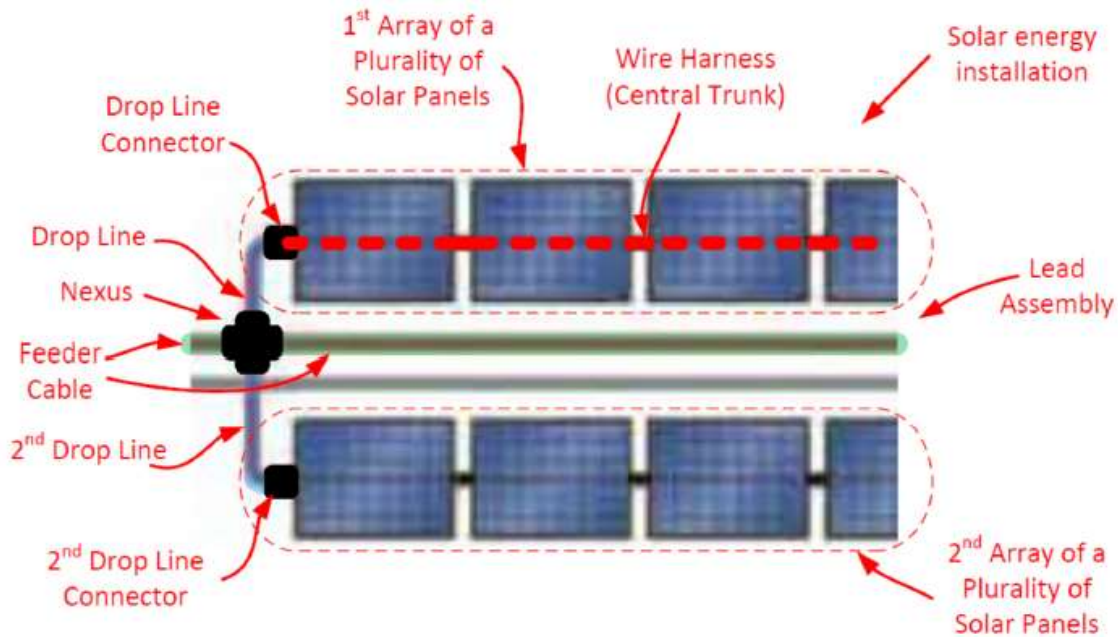
ii. Element 1(a)

Claim 1 further requires as follows:

a drop line terminating at a drop line connector, the drop line connector configured to connect with a central trunk of a wire harness, the central trunk of the wire harness having a plurality of branches that each are configured to electrically connect to a separate solar panel contained in an array of a plurality solar panels.

Ex. 1001, 6:52–57.

Petitioner asserts that the drop line, drop line connector, central trunk, and branches limitations are taught by Amphenol as indicated below in the annotated figure from Amphenol.



EX1007, p.5, middle image (Relief & 2nd-annotation)

Pet. 49. The diagram above is an annotated version of the unlabeled diagram from the Amphenol brochure. Ex. 1007, 5. Petitioner further asserts that, although the claimed “plurality of branches” is not shown, one of ordinary skill in the art “would understand that the central trunk of Amphenol’s wire harness has a plurality of branches that each electrically connects to separate solar panel modules.” Pet. 49 (citing Ex. 1003 ¶ 212).

Petitioner additionally asserts, as it did in connection with Ground I, that Yamawaki teaches “wire harnesses coupled to other wire harnesses and cable assemblies for combining the current from solar panels.” *Id.*

Petitioner argues that a person of ordinary skill in the art would have been motivated to combine the teachings of Amphenol and Yamawaki. *Id.* at 45–47, 49–50. Petitioner puts forth several reasons (relevant to claim

element 1(a)) why one of skill in the art would have made such a combination. *Id.* First, Petitioner asserts that “Yamawaki teaches that it was known to include wire harnesses coupled to other wire harnesses and cable assemblies for combining the current from solar panels to deliver to a common connection point.” *Id.* at 46. Second, Petitioner asserts that “Yamawaki discloses photovoltaic generation systems connected to an inverter via a jumper cable.” *Id.* Third, Petitioner contends that a “POSITA would understand that the various different arrangements for solar installations disclosed by Yamawaki could be applied as needed for a particular installation,” and that “a POSITA would understand that the arrangement of wiring assemblies disclosed by Yamawaki can be extended and combined with Amphenol to efficiently form a solar installation.” *Id.* at 49–50.

Patent Owner disputes the foregoing. Prelim. Resp. 34–39. Patent Owner argues that what Petitioner regards as a wire harness in Amphenol is merely “intra-module wiring.” *Id.* at 34. Patent Owner argues that a “wire harness” must include a “central trunk” and several “branches” where each branch is connected to a solar panel. *Id.* Patent Owner asserts that intra-module wiring is the wiring between solar modules that form a panel. *Id.* at 35.

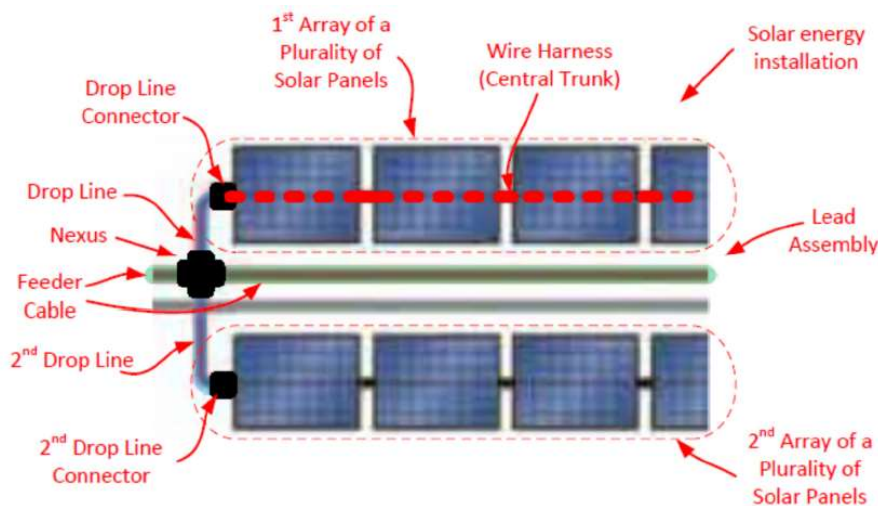
Patent Owner additionally disputes Petitioner’s contentions regarding Amphenol’s disclosure of a central trunk. *Id.* at 36. Patent Owner asserts that “nothing in Amphenol indicates what sort of wiring connects the solar modules in each row” and that there are several ways to do so. *Id.* at 36–37 (citing Ex. 2001 ¶ 91). Patent Owner further states that each row of the Amphenol diagram is a row of solar modules that together form a panel. *Id.*

at 37. Accordingly, Patent Owner views the wiring of Amphenol as a wire harness, not a lead assembly as required by claim 1. *Id.*

Patent Owner argues that Petitioner has not set forth a sufficient basis for combining the teachings of Amphenol and Yamawaki. Prelim. Resp. 39–47. Patent Owner states that much of Petitioner’s basis for its combination is that the references are analogous art or a mere statement of the benefits of the reference. *Id.* at 40, 41–43. Patent Owner directs us to caselaw regarding the need for specificity in proposing a reason why one of skill in the art would have combined the teachings of two (or more) references. *Id.* at 40–41, 44–46.

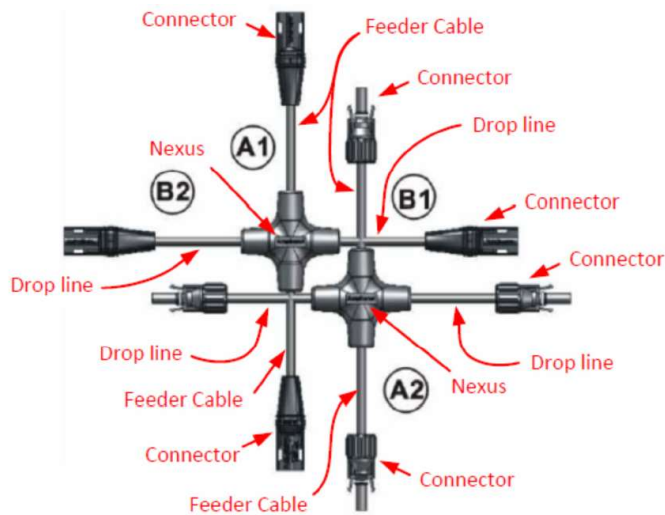
iii. Element 1(b)

Claim 1 further requires that the lead assembly include “a feeder cable electrically coupled to the drop line at a nexus.” Ex. 1001, 6:58–59. In the diagram below, Petitioner relies on the portion of Amphenol marked in green to identify a feeder cable and the portion marked in blue to identify two drop lines.



EX1007, p.5, middle image (Relief & 2nd-annotation)

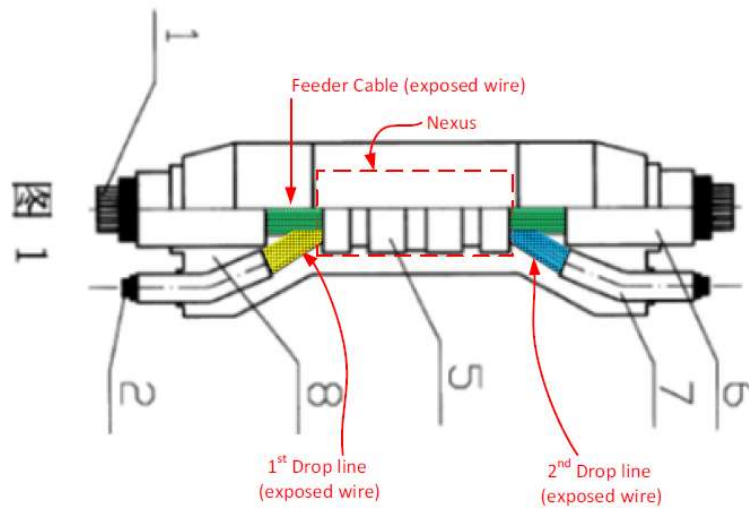
Pet. 50. The diagram above is an annotated version of the unlabeled diagram from the Amphenol brochure. Ex. 1007, 5. Petitioner includes another diagram showing two x-connectors labeled as shown below.



EX1007, p.13, bottom image (1st-annotation)

Pet. 51. The diagram above is an annotated version of a diagram from the Amphenol brochure labeled “T/X-Junction cable assembly ordering configuration.” Ex. 1007, 13.

Petitioner additionally relies on Shao as teaching the electrical coupling of the drop lines to the feeder cable. Pet. 51–52. This is shown in the figure below.



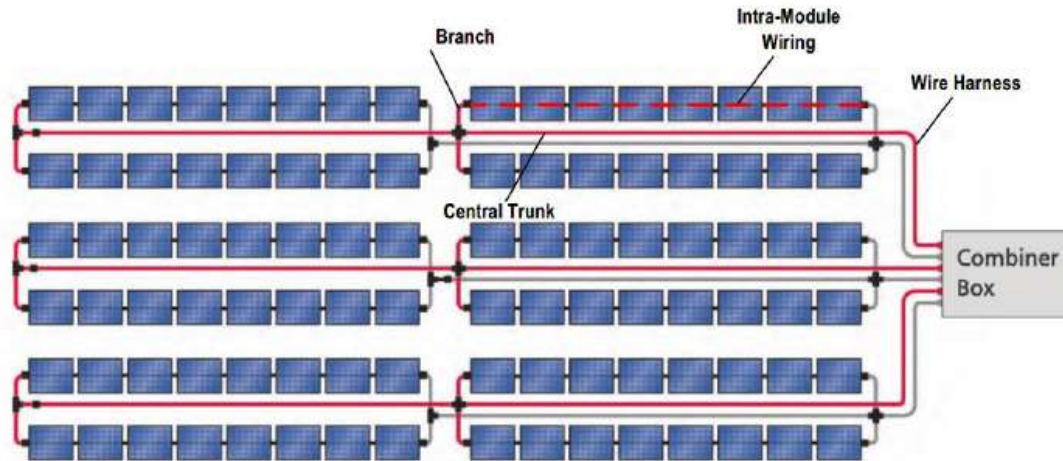
EX1008, FIG. 1 (1st-annotation)

The figure above is an annotated version of Shao, Figure 1. Ex. 1008, Fig. 1. Specifically with respect to claim element 1(b), Petitioner asserts that a person of ordinary skill in the art would have been motivated “to use the coupling design of Shao to ensure a proper electrical connection for the junctions of Amphenol.” Pet. 51.

Addressing the combination of Amphenol and Shao more generally, Petitioner argues that there are several reasons why one of skill in the art would have looked to the teachings of Shao to modify Amphenol. *Id.* at 43–44. First, Petitioner argues that the k-branch connector design of Shao would have provided one of ordinary skill “additional guidance for designing and fabricating the cross junctions disclosed in Amphenol.” *Id.* at 43. Second, Petitioner argues that Shao teaches details regarding “overlapping and crimping the main cable and drop lines that can be used in the cross junction of Amphenol including the use of an extended copper C-shaped clamp to ensure electrical contact (i.e., conductivity) and mechanical joining between the feeder cable and the drop lines.” *Id.* Third, Petitioner asserts that the design of Shao “eliminates extra branch joints and

provides a low-profile and compact design, which can avoid having branch cables with sharp bends that compromise cable integrity.” *Id.* at 43–44.

Patent Owner contests Amphenol’s disclosure of a “feeder cable” and “drop line.” Patent Owner provides a diagram it describes as “[t]he properly annotated layout of the figure in Amphenol” below.



Prelim. Resp. 38. Patent Owner regards the structure that Petitioner identifies as the “feeder cable” as the central trunk of a wire harness. Patent Owner additionally regards the structure that Petitioner identifies as “drop lines” as branches of a wire harness. *Id.* at 38–39.

Patent Owner additionally argues that Petitioner has not stated a sufficient basis why a person of ordinary skill in the art would have combined the teachings of Amphenol and Shao. *Id.* at 41–47. Patent Owner argues that Petitioner relies on the references being analogous art. *Id.* at 41–42. Patent Owner further argues that Petitioner merely “recite[s] generic benefits of a given reference as a basis for combining with another reference.” *Id.* at 42. Patent Owner argues that “[n]othing in [Petitioner’s expert’s] testimony provides a specific and meaningful reason or motivation to combine the references.” *Id.* at 43.

iv. Element 1(c)

Claim 1 additionally requires as follows:

an undermold that fully encases the nexus, the undermold further comprising:

a first aperture extending completely through the undermold and having a first diameter, wherein the feeder cable extends through the first aperture along a first longitudinal axis; and

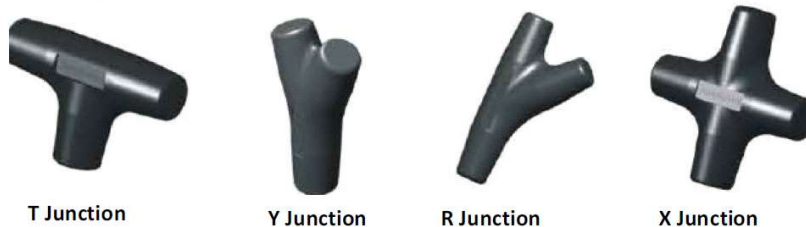
a second aperture extending partially through the undermold and having a second diameter different than the first diameter, wherein the drop line extends from the second aperture along a second longitudinal axis; [and]

a third aperture extending partially through the undermold and having a third diameter different than the first diameter, wherein a second drop line extends from the third aperture along a third longitudinal axis.

Ex. 1001, 6:60–7:12.

Petitioner construes “undermold” to mean a “material molded over a piece or part that seals against environmental factors.” Pet. 52. Petitioner asserts that Amphenol teaches undermolds over “various forms of nexus.” *Id.* (citing Ex. 1007, 5). Petitioner further asserts that Amphenol discloses various molded junctions (i.e., undermolds) that may be used to enclose a nexus as shown below.

Cable Assy and Diversity Junctions



EX1007, p.5, bottom image

Pet. 53. The diagram above is reproduced from Amphenol and shows various types of junctions. *See* Ex. 1007, 5.

Petitioner further asserts that the nexus of Shao is covered by a sheath made of injection molding material which it regards as an undermold. *Id.* at 53–54. Petitioner additionally states that “[a] POSITA would have been motivated to use the undermold design of Shao to properly seal the exposed cables and the metal clamp holding them together, protecting those elements from damage and/or exposure, while providing a compact design.” *Id.* at 54.

Patent Owner does not contest Petitioner’s description of the disclosures of Amphenol and Shao pertaining to claim element 1(c). Patent Owner’s arguments regarding whether a person of ordinary skill in the art would have had reason to combine the teachings of Amphenol and Shao (Prelim. Resp. 39–47), discussed above, are applicable to this claim element.

v. Element 1(d)

Claim element 1(d) requires “an overmold surrounding the undermold and forming an undermold-overmold interface at an outer surface of the undermold.” Ex. 1001, 7:9–11. Petitioner asserts that Yamawaki teaches applying an overmold over an undermold of a branch cable connection to provide an added layer of waterproofing. Pet. 56 (citing Ex. 1006, 10:19–22, 13:15–18, Ex. 1003 ¶ 242). Petitioner contends that one of ordinary skill in the art would have had reason to “use the added overmold taught by Yamawaki [in combination with the branch connector of Shao] to provide added protection against environmental elements.” *Id.* at 57.

Patent Owner does not contest Petitioner’s description of the disclosures of Shao and Yamawaki pertaining to claim element 1(d). Patent

Owner’s arguments regarding whether a person of ordinary skill in the art would have had reason to combine the teachings of Amphenol and Shao (Prelim. Resp. 39–47), discussed above, are applicable to this claim element.

vi. Public Accessibility of Amphenol

Petitioner relies on Amphenol as its primary reference in support of Ground II (as well as Grounds III and IV). Patent Owner argues that Petitioner has not adequately shown that Amphenol was publicly accessible before September 2014. Prelim. Resp. 28–33.

In the context of an *inter partes* review, the Board has held as follows:
at the institution stage, the petition must identify, with particularity, evidence sufficient to establish a *reasonable likelihood* that the reference was publicly accessible before the critical date of the challenged patent and therefore that there is a *reasonable likelihood* that it qualifies as a printed publication.

Hulu, LLC, v. Sound View Innovations, LLC, IPR2018-01039, Paper 29 (PTAB Dec. 20, 2019) (precedential) (“*Hulu*”) 13 (emphasis added). The Board further noted that, for post-grant review, the standard is “*more likely than not.*” *Id.* n.5 (emphasis added); *see also Syngenta Crop Protection AG, v. UPL Ltd.*, IPR2023-00017, Paper 58 (PTAB July 26, 2024), 10–11 (applying *Hulu* in the context of a post-grant review). Accordingly, in the present proceeding, Petitioner bears the burden of identifying, with particularity, evidence sufficient to establish that it is more likely than not that the challenged reference was publicly accessible before the critical date of the challenged patent.

In support of its assertion that Amphenol was publicly accessible prior to the effective filing date, Petitioner submits the Declaration of Gary

Joseph. Ex. 1024. Mr. Joseph testifies, by declaration, that he is a current employee of Petitioner Voltage and former employee of Amphenol Industrial Operations (currently Amphenol Industrial Products Group). Ex. 1024, ¶¶ 1, 3. He describes Amphenol as “a product catalog representing a broad array of products, including solar connectors, cables, cable assemblies, tools, accessories, and other parts for use in designing and assembling solar installations.” *Id.* ¶ 2. He further testifies that “[t]he products in the Solar Line Brochure were generally available for sale in the United States as of November 2012, the ‘Release Date’ identified on the cover page of the Solar Line Brochure.” *Id.* ¶ 4. He further states, “[t]o the best of my knowledge, the products listed in the Solar Line Brochure were offered for sale by the release date stated on the document, November 2012.” *Id.* ¶ 6.

Mr. Joseph testifies that “it was Amphenol’s regular practice to make at least the latest version of the Solar Line Brochure available for download on Amphenol’s website.” *Id.* ¶ 8. Mr. Joseph states that “it was also Amphenol’s regular practice to make printed copies of a recent or current version of the Solar Line Brochure available” at industry events. *Id.* ¶ 8. He additionally states that “I recognize the Solar Line Brochure as a true and accurate copy of the Solar Line Brochure that would have been publicly available around or after its stated Release Date of November 2012.” *Id.* ¶ 10.

Patent Owner argues that Petitioner has not shown that Amphenol was more likely than not publicly accessible. Prelim. Resp. 28–33. Patent Owner asserts that the phrase “Release date” does not imply publication. *Id.* at 30–31. Patent Owner argues that Mr. Joseph, as a Voltage employee, may suffer from unconscious bias. *Id.* at 31. Patent Owner further argues that the

Petition asserts only that Amphenol is a printed publication while much of the Joseph Declaration pertains to availability for sale. *Id.*

Patent Owner asserts that the Declaration does not directly state that Amphenol was disseminated to those in the relevant field. *Id.* at 31–32. Patent Owner additionally asserts that the Declaration does not identify the origin of Amphenol. *Id.* at 32. Patent Owner concludes that “Mr. Joseph’s declaration is so general and threadbare that it cannot satisfy the ‘more likely than not’ standard required in this PGR to establish the public accessibility of the Amphenol reference via dissemination or availability to interested and reasonably diligent POSAs.” *Id.* at 33.

We determine, on the present record, that the Amphenol reference was more likely than not available at or around the stated release date. The Declarant states that he recognizes the exhibit as a copy of the Amphenol catalog. Ex. 1024 ¶ 10. He further states that it was Amphenol’s practice to make its sales catalogs available to the relevant public. Ex. 1024 ¶ 8. This is plausible. As a company in the business of selling “electrical, electronic, and fiber optic connectors, [and] interconnect systems,” (Ex. 1007, 2), Amphenol would have had reason to distribute its product catalog at industry events and to post such materials in an accessible manner on its web site. Further, the stated release date is a “conventional indicia of publication” that may be relied on absent contrary evidence. *See Intel Corp. v. FG SRC, LLC*, IPR 2020-01449, Paper 53 (March 1, 2022) at 33-34 (determining that the Board may rely on “conventional indicia of publication” as evidence that a document has been published.).

vii. Obviousness

Petitioner argues that Amphenol (at page 5) discloses both a wire harness and lead assembly as required by claim elements 1(a) and (b). Pet. 48–50; *see id.* at 49 (annotated diagram). Petitioner also asserts that Yamawaki teaches that it was known “to include wire harnesses coupled to other wire harnesses” to deliver electrical current to a common point. *Id.* Petitioner concludes that “a POSITA would understand that the arrangement of wiring assemblies disclosed by Yamawaki can be extended and combined with Amphenol to efficiently form a solar installation.” *Id.*

Petitioner has not carried its burden of showing that it is more likely than not that claim 1 would have been unpatentable. The diagram at page 5 of Amphenol does not include a single word of explanatory text. Ex. 1007, 5 (right hand side). Nor does Amphenol explicitly depict branches of a wire harness electrically connected to solar panels. *Id.*

Patent Owner asserts that “nothing in Amphenol indicates what sort of wiring connects the solar modules in each row” and that there are several ways to do so. Prelim. Resp, 36–37. Patent Owner further states that each row of the Amphenol diagram is a row of solar modules that together form a panel. *Id.* at 37. It is difficult to overcome such objection given the paucity of information in Amphenol.

Petitioner’s limited briefing (Pet. 49–50) regarding Yamawaki does not compensate for these defects. Petitioner states that Yamawaki teaches that it was known “to include wire harnesses coupled to other wire harnesses” but does not specifically state how this bears upon its theory of obviousness. Nor does Petitioner describe, with specificity, the nature of its proposed hypothetical combination. Thus, application of Yamawaki’s

teachings to Amphenol would require some degree of speculation. Considered as a whole, Petitioner's arguments do not show that it is more likely than not that claim 1 would have been unpatentable.

b. Claims 2, 3, 5–19, and 21–24

Claims 2, 3, and 5–19 depend, directly or indirectly, from claim 1. Ex. 1001, 7:13–8:2. In its briefing regarding these claims, Petitioner addresses the additional limitations of the dependent claims but does not further supplement its reasoning regarding the obviousness of underlying claim 1. Pet. 58–70. Accordingly, in view of our analysis above, Petitioner does not show that it is more likely than not that these claims would have been unpatentable.

Claim 21 is independent. Claims 22 and 23 depend from claim 21. In support of its assertion that these claims would have been obvious, Petitioner refers us to its briefing in connection with claim 1. Pet. 71–72. Similarly, with respect to claim 24, Petitioner refers us to its briefing in connection with claim 1. *Id.* at 73–74. As we have not found the arguments therein to be persuasive, Petitioner has not shown that it is more likely than not that these claims would have been unpatentable.

c. Conclusion with Respect to Ground II

Petitioner has not shown that it is more likely than not that claims 1–3, 5–19, and 21–24 would have been unpatentable.

G. Ground III

Petitioner argues that claim 20 would have been obvious over the teachings of Amphenol (Ex. 1007), Shao (Ex. 1008), Yamawaki (Ex. 1006), and Tamura (Ex. 1009). Pet. 74–76.

1. Prior Art (Tamura)

Tamura is a Japanese patent titled “Method for molding cable branch portion” and issued April 23, 2008. Ex. 1009, codes (45), (54). A figure from Tamura is reproduced below.

[Fig. 1]

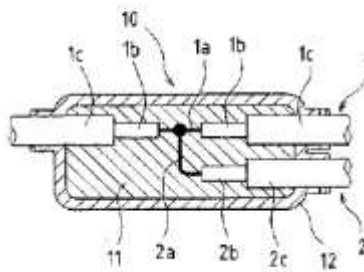


Figure 1 depicts a “molded structure for a branch portion of a CV cable.” *Id.* ¶ 14. The figure shows trunk cable 1, branch cable 2, inside molded portion 11, and outside molded portion 12. *Id.* Tamura teaches “a resin is injected into the forming die . . . and the outside molded portion covering the inside molded portion is molded.” *Id.* ¶ 11. Tamura teaches that, by practicing its method, “waterproofing performance can be enhanced.” *Id.* ¶ 9.

2. Claim 20

Claim 20 depends from claim 1 and further provides “wherein the overmold is applied by injection molding.”⁴ Ex. 1001, 8:3–4. Petitioner argues that one of ordinary skill in the art would have had reason to “enhance the wiring assembly taught by Amphenol, as modified by Shao

and Yamawaki, to include greater protections of power cable joints with an outer mold as taught by Tamura for several reasons.” Pet. 75.

Petitioner argues that Tamura teaches the use of an injection-molded outermold over an innermold to protect power cable joints. *Id.* Petitioner additionally argues that Tamura teaches that improved waterproofing may be obtained by injection molding PVC outermold over a polyethylene undermold so as to achieve better adhesion. *Id.*

The teachings of Tamura, however, do not cure the defects in Petitioner’s underlying showing regarding claim 1, which claim 20 depends from. Petitioner does not directly or separately address the limitations of independent claim 1. Pet. 76. For these limitations, Petitioner impliedly relies on the same arguments it presents with respect to claim 1 in Ground II. As we have not found the arguments set forth in Ground II to be persuasive, we similarly determine Petitioner has not shown that it is more likely than not that dependent claim 20 would have been unpatentable.

H. Ground IV

Petitioner argues that claims 1–3, 5, 6, and 8–24 would have been obvious over the teachings of Amphenol (Ex. 1007), Shao (Ex. 1008), and Tamura (Ex. 1009). Pet. 76–101.

1. Claims at Issue

a. Claim 1

Petitioner relies on Amphenol as teaching claim elements 1(a) and 1(b). Pet. 79–80. In support of its assertion that Amphenol teaches claim elements 1(a) and (b), Petitioner relies on the same reasoning put forth with respect to its discussion of claim 1 in Ground II. *Compare* Pet. 48–50 with *id.* at

79–80. For the reasons discussed above, we determine Petitioner has not shown that it is more likely than not that claim 1 would have been unpatentable in view of, *inter alia*, Amphenol. Similarly, we do not find such arguments to be persuasive with respect to Ground IV.

b. Claims 2, 3, 5, 6, and 8–24

Claims 2, 3, 5, 6, and 8–20 depend, directly or indirectly, from claim 1. Ex. 1001, 7:13–8:4. In its briefing regarding these claims, Petitioner addresses the additional limitations of the dependent claims but does not further supplement its reasoning regarding the obviousness of underlying claim 1. Pet. 85–98.

Claims 21 and 24 are independent. Ex. 1001, 8:5–9:4. Claims 22 and 23 depend from claim 21. *Id.* at 8:34–42. In support of its assertion that independent claims 21 and 24 would have been obvious, Petitioner refers us to its briefing in connection with claim 1. Pet. 99–100.

Thus, in substance, for each claim at issue in Ground IV, Petitioner relies upon the arguments regarding Amphenol that it put forward with respect to claim 1 in Ground II. As we have not found such arguments to be sufficient to show that it is more likely than not that claim 1 would have been unpatentable, we similarly do not find such arguments to be persuasive with respect to claims 2, 3, 5, 6, and 8–24.

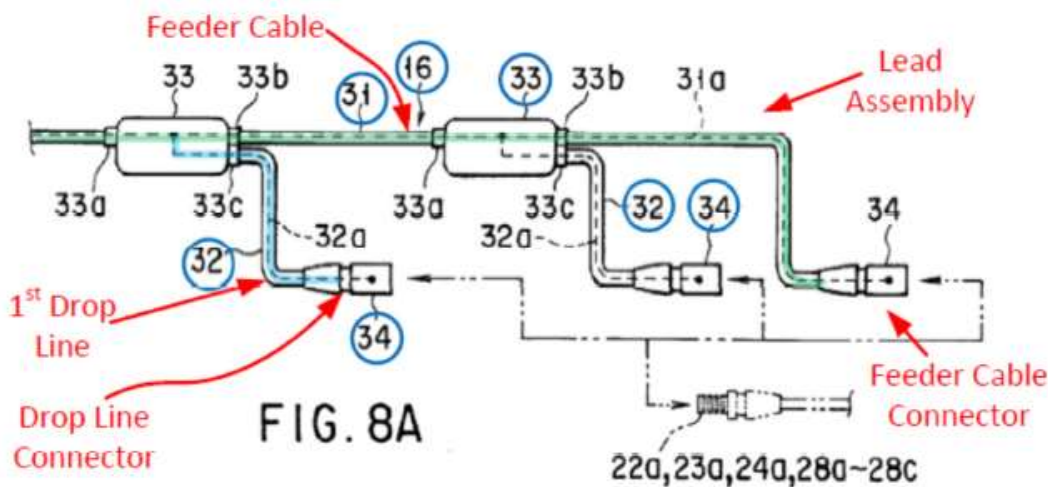
I. *Ground V*

Petitioner argues that claims 1–3, 5–10, 12–15, 18, 19, and 21–24 are unpatentable as obvious in view of Yamawaki and Shao. Pet. 101–132.

1. Claim 1

Petitioner argues that “wiring apparatus 16” of Yamawaki teaches a lead assembly, thus, satisfying the preamble. *Id.* at 103–104.

In support of its view that Yamawaki teaches claim element 1(a), Petitioner cites to the trunk cable 31 of Yamawaki as teaching the claimed “feeder cable.” Pet. 104–105. Petitioner additionally cites to branch cable 32 of Yamawaki as teaching the claimed “drop lines.” *Id.* at 105. This is shown in the figure below reproduced from the Petition. *Id.*



EX1006, FIG. 8A (1st-annotation)

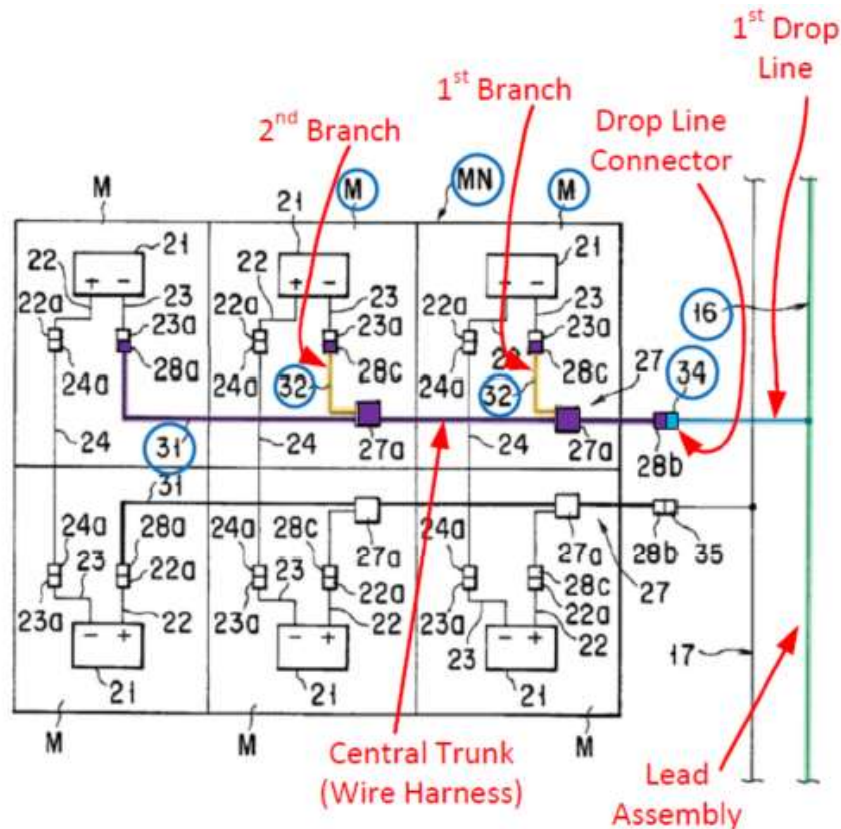
The figure above is an annotated version of Figure 8A of Yamawaki.

Further discussing claim element 1(a), Petitioner relies on trunk cable 31 of Yamawaki a second time. *Id.* at 105. This latter time, Petitioner asserts that the wire harness 31 of Yamawaki teaches the claimed “central trunk.” *Id.* at 105. Petitioner also cites to Yamawaki’s branch cables 32 a second time. This second time, Petitioner asserts that the branch cable of Yamawaki teaches the claimed “plurality of branches” of the wire harness. *Id.*

Thus, Petitioner relies on the trunk cable as teaching *both* the feeder cable of the lead assembly and the central trunk of the wire harness.

Similarly, Petitioner relies on branch cables 32 as teaching *both* the drop lines of the lead assembly and the branches of the wire harness. Petitioner does not offer any explanation as to how these prior art structures can satisfy multiple claim limitations.⁵ Accordingly, the Petition fails to identify “with particularity . . . the evidence that supports the grounds for the challenge” to claim 1. *See* 35 U.S.C § 322(a)(3).

Additionally, we note that the analysis suggested by Petitioner’s annotated Figure 7 (reproduced below) appears to be inadequate. *Id.* at 106.



EX1006, FIG. 7 (1st-annotation)

The figure above is an annotated version of Figure 7 of Yamawaki. Pet. 106.

⁵ This analysis is substantially repeated with respect to claim 13 where trunk cable 31 is designated both a “feeder cable” and a “central trunk.” *See* Pet. 123–125.

Petitioner’s annotated Figure 7 relies on branch cables 32 as teaching the “plurality of branches” of the wire harness of claim 1. Claim 1 requires that each branch be “configured to electrically connect to a separate solar panel.” Ex. 1001, col. 6:56–57. The branch cables 32 as shown each connect to a single module M. *See* Ex. 1006, col. 7:62–64. These modules M make up a module unit MN. *Id.* at 7:66–67 (“Each module unit MN includes a plurality of modules M that are arranged in a matrix.”). The Petition does not specifically address the relationship of modules M, module units MN, and panels 15 in Yamawaki. Accordingly, it is not apparent that Yamawaki teaches “a plurality of branches that each are configured to electrically connect to a separate solar panel” as required by claim element 1(a).

In view of the foregoing, Petitioner fails to carry its burden to show that it is more likely than not that claim 1 would have been unpatentable over Yamawaki in view of Shao.

2. Claims 2, 3, 5–10, 12–15, 18, and 19

Claims 2, 3, 5–10, 12–15, 18, and 19 depend, directly or indirectly, from claim 1. Ex. 1001, 7:13–8:2. In its briefing regarding these claims, Petitioner addresses the additional limitations of the dependent claims but does not further supplement its reasoning regarding the obviousness of underlying claim 1. Pet. 85–98. Thus, with respect to these claims, Petitioner relies upon the arguments it puts forward with respect to claim 1. As we have not found such arguments sufficient to show that it is more likely than not that claim 1 would have been unpatentable, we similarly do not find such arguments to be persuasive with respect to these dependent claims.

3. *Claims 21–24*

Claims 21 and 24 are independent. Ex. 1001, 8:5–9:4. Claims 22 and 23 depend from claim 21. *Id.* at 8:34–42. In support of its assertion that independent claims 21 and 24 would have been obvious, Petitioner refers us to its briefing in connection with claim 1. Pet. 129–132. As we have not found the arguments set forth with respect to claim 1 to be persuasive, Petitioner has not shown that it is more likely than not that claims 21–24 would have been unpatentable.

J. *Grounds VI and VII*

Petitioner argues, under Ground VI, that claims 11, 16, and 17 would have been obvious over the teachings of Yamawaki (Ex. 1006), Shao (Ex. 1008), and Solon (Ex. 1005). Pet. 132–135. Petitioner further argues, under Ground VII, that claim 20 would have been obvious over the teachings of Yamawaki, Shao, and Tamura (Ex. 1009). *Id.* at 135–137.

Each of the claims at issue in Grounds VI and VII depends from claim 1. In arguing that such claims would have been obvious, Petitioner does not address independent claim 1. Rather, Petitioner impliedly relies on its arguments put forth with respect to claim 1 in connection with Ground V. As we have not found the arguments set forth with respect to claim 1 to be persuasive, Petitioner has not shown that it is more likely than not that claims 11, 16, 17, and 20 would have been unpatentable.

K. *Ground VIII*

Petitioner argues that each claim of the '153 patent is invalid for failure to satisfy the written description requirement and also that such claims are indefinite. Pet. 137–150. More specifically, Petitioner argues that

the claim terms “a first aperture extending completely through the undermold,” “a second aperture extending partially through the undermold,” and “a third aperture extending partially through the undermold” lack written descriptive support and are indefinite. *Id.*

1. Background

The ’153 patent claims priority to United States Patent No. 10,992,254 B2 (Ex.1020) (“the ’254 patent”). Ex. 1001, code (63). The originally filed claims of the ’254 patent do not use the terms “aperture,” “extending completely,” or “extending partially.” Ex. 1021⁶, 328–331. Nor does the specification of the ’153 patent (or its parent ’254 patent) use such terms (except for its unrelated use of “aperture” to describe structure 25 (external to the overmold)). *See, e.g.*, Ex. 1001, 4:61–63.

The “first aperture” and “second aperture” terms were introduced at the suggestion of the Examiner during the course of prosecution of the ’254 patent. *See* Ex. 1021, 103–105. Subsequent amendment resulted in each of the independent claims (claims 1, 7, and 14) of the ’254 patent reciting a “first aperture extending continuously through said undermold” and a “second aperture ***only partially extending*** through said undermold.” Ex. 2021, 65–78; Ex. 1020, 6:60–8:47 (emphasis added). None of the claims of the ’254 patent require a “third aperture.”

The original claims of the ’153 application (Application No. 17/301,609, filed April 8, 2021) included the “third aperture extending partially” limitation. *See* Ex. 1002, 321–323 (claim 10).

⁶ Exhibit 1021 is the prosecution history of the ’254 patent.

2. Claim Construction

As a first step, we construe the scope of the terms at issue. *See Koninklijke Philips Elecs. N.V. v. Cardiac Sci. Operating Co.*, 590 F.3d 1326, 1336 (Fed. Cir. 2010) (a tribunal “must base its analysis of written description under § 112[a] on proper claim construction.”).

a. The Parties’ Positions

Petitioner proposes that “aperture” be construed to mean a “3-D hole (i.e., the entire pathway for a cable in the [undermold/primary mold]) that exists when viewed as if the entire cable is removed.” Pet. 14–15. Petitioner indicates that its proposal is “consistent with” a tentative construction in proceedings before the International Trade Commission⁷ but does not offer meaningful argument in support of this definition. *Id.* at 15. Patent Owner makes a similar proposal for the construction of “aperture” (Prelim. Resp. 10). Given the relative agreement of the parties, we need not construe the term “aperture” further. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”).

Petitioner further proposes that one of ordinary skill in the art would have understood that “undermold” and “primary mold” in the claims mean a “material molded over a piece or part that seals against environmental factors.” *Id.* at 16. As above, Petitioner indicates that such construction is

⁷ This construction was subsequently reaffirmed by the ITC Administrative Law Judge in the Final Initial Determination on Violation of Section 337 (August 30, 2024). *See* Ex. 2020, 56.

consistent with the ITC proceedings but does not offer argument in support. *Id.* Patent Owner proposes that “primary mold” be construed to mean “[a] mold fully encasing the nexus and substantially sealing the nexus from external environmental conditions.” Prelim. Resp. 9 (quoting, Ex. 1017 (ITC Order No. 16), 37). These definitions are sufficiently similar that we need not engage in formal claim construction of this term for present purposes. *See Realtime Data, LLC*, 912 F.3d at 1375.

Patent Owner additionally argues that “extending partially” should be construed to mean “[t]he ‘second aperture’ and ‘third aperture’ terms correspond to the pathway in the undermold/primary mold of the claimed ‘first drop line’ and ‘second drop line,’ respectively.” *Id.* at 10 (quoting Ex. 1017, 49). Patent Owner argues that this definition is correct as “the natural reading of the claims conveys that the aperture is coextensive with the respective drop lines” *Id.* at 12.

Patent Owner additionally argues that “[t]hus, the aperture extends no farther than the combination of mold and drop line; once either the mold or the drop line ends, so too does the aperture” (*id.* at 84). Patent Owner further argues as follows:

Whether or not the aperture—i.e., the drop-line pathway within the mold—stops where the nexus starts, it cannot continue farther than the drop line itself. Each drop line ends within the nexus and “does not go out the other side regardless of what the wire does.” The nexus, in turn, is fully encased by the undermold (independent claim 1 and claims depending therefrom) or primary mold (independent claims 21 and 24, and dependent claim 23). It follows, inescapably, that the drop line does not extend completely through the mold; therefore, its pathway (aperture) cannot continue completely through the mold, either.

Id. at 85 (internal citations omitted).

Petitioner does not propose any construction of “extending partially” but does argue that such term renders the claims indefinite. Pet. 15–16, 142–150.

b. Analysis

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.200(b). Under this standard, claim terms are construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

The term that is central to Ground VIII is “aperture extending partially through the undermold.” The term “aperture *only* partially extending through said undermold” was added to the claims of the ’254 parent application by amendment. Ex. 1021, 103–105; Ex. 1020, 6:60–8:47. With this amendment, the claims of the ’254 patent align with Figure 7, reproduced below.

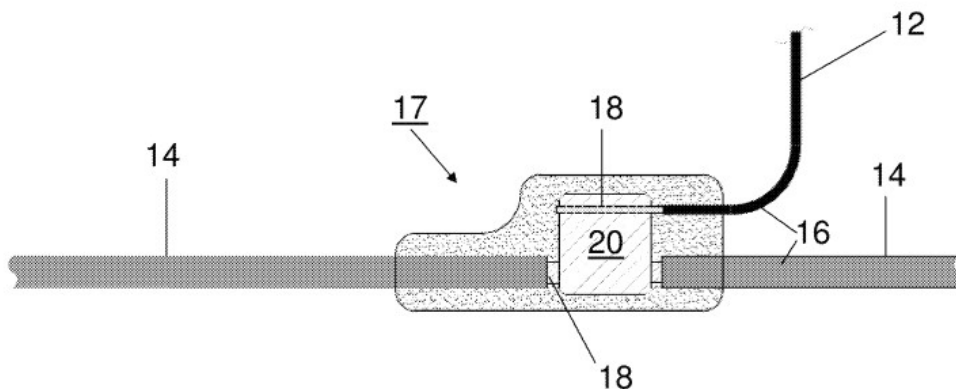


Figure 7 of the '254 Patent

(Figure 7 of the '153 patent is identical to Figure 7 of the '254 patent except for minor stylistic changes). As can be seen, the aperture occupied by drop line 12 extends partially through the undermold to compression lug 20 while the aperture occupied by feeder cable 14 extends completely through the undermold. This suggests a construction of “aperture extending partially through the undermold” where such aperture does not extend completely through the undermold. Such a construction of “aperture extending partially through the undermold” is consistent with the plain meaning of “extending partially.”

The Federal Circuit has discussed the plain meaning of “partially” as follows:

All three dictionaries cited by the district court support its construction of the term “partially.” The first describes “partially” as “to some extent.” *Webster's Third New International Dictionary of the English Language Unabridged* 1646, def. 1 (1993). The second defines “partially” as “[t]o a degree; not totally.” *American Heritage Dictionary of the English Language* 1319 (1996). The third describes “partially” as “[i]n partial way or degree, as opposed to totally; to some extent; in part; incompletely, restrictedly; partly.” *Oxford English Dictionary* 267, def. 2.a. (2d ed.1989). . . . Based on the foregoing, ***the ordinary and customary meaning of the term “partially” excludes “totally.”***

Helmsderfer v. Bobrick Washroom Equip., Inc., 527 F.3d 1379, 1382–83 (Fed. Cir. 2008) (emphasis added) (affirming district court claim construction that “partially hidden” excludes “completely” hidden).

Patent Owner argues that “[t]he ‘second aperture’ and ‘third aperture’ terms correspond to the pathway in the undermold/primary mold of the

claimed ‘first drop line’ and ‘second drop line,’ respectively” and “the aperture is coextensive with the respective drop lines.” Prelim. Resp., 10, 12. This may be best understood in the context of the figures reproduced below.

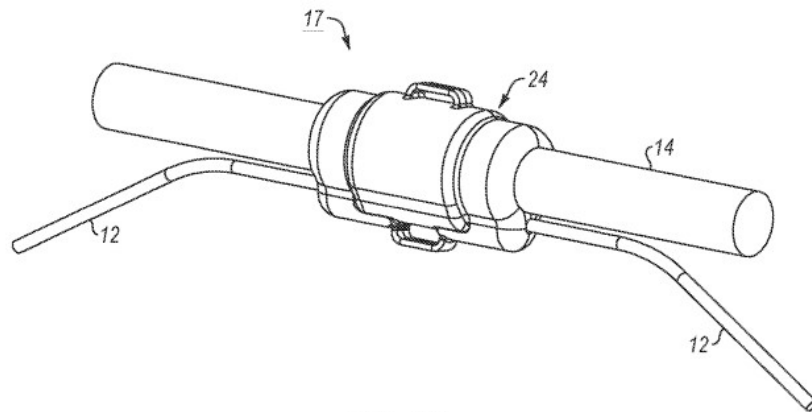


FIG. 29

Figure 29 of the '153 patent depicts a “dual drop” lead assembly. Ex. 1001, 2:66–67. The dual drop lead assembly of Figure 29 may have two drop lines 12 formed of the same wire as shown in the figure below.

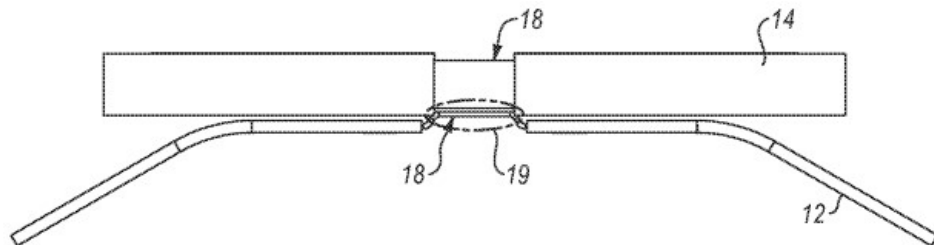


FIG. 37

Figure 37 depicts a dual drop lead assembly with wires exposed at the nexus. *Id.* at 3:16–17.

Patent Owner argues that each drop line terminates at the nexus, therefore, the aperture should be viewed as terminating at the nexus. *See* Prelim. Resp. 80 (“a single wire may form two distinct drop lines—each with its own partially extending aperture.”). Patent Owner’s proposed construction seems to allow an aperture that extends *completely* through the

undermold to be construed as two apertures each of which extends only *partially* through the undermold. This would be contrary to the plain meaning of “extending partially.”

Accordingly, we construe “aperture extending partially through the undermold” to mean an aperture that does not extend totally through the undermold. The scope of the term “aperture” does not depend on any drop line extending “from” or “into” such aperture.

3. *Written Description Requirement*

Section 112 of the Patent Statute requires that a patent specification shall contain a “written description” of the invention. 35 U.S.C. § 112(a). The purpose of the written description requirement is to “ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 920 (Fed. Cir. 2004) (quoting *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed. Cir. 2000)). This requirement protects the quid pro quo between inventors and the public, whereby the public receives “meaningful disclosure in exchange for being excluded from practicing the invention for a limited period of time.” *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002).

To satisfy the written description requirement, the disclosure must reasonably convey to skilled artisans that the inventor possessed the claimed invention as of the priority date. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). “One does that by such descriptive means as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention.” *Lockwood v. Am. Airlines, Inc.*, 107

F.3d 1565, 1572 (Fed. Cir. 1997). “The invention is, for purposes of the ‘written description’ inquiry, whatever is now claimed.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991). Such description need not recite the claimed invention *in haec verba* but must do more than merely disclose that which would have rendered the claimed invention obvious. *Univ. of Rochester*, 358 F.3d at 923; *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1566–67 (Fed. Cir. 1997); *see also PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306–07 (Fed. Cir. 2008) (explaining that § 112 “requires that the written description actually or inherently disclose the claim element”).

a. The Parties’ Positions

In support of its view that the “aperture”-containing limitations lack written description support, Petitioner argues as follows:

[a]t best, Figure 7 of the ’153 patent provides some support that the inventor had possession of a single drop lead assembly wherein a drop line extends partially through the undermold. However, there is no similar depiction of the mold structure in which an aperture would be formed for the claimed dual drop embodiment. The figures in the ’153 patent fail to convey to one of ordinary skill in the art that the inventor was in possession of a dual drop embodiment with apertures that partially extend through a mold Accordingly, Claims 1–24 of the ’153 patent are invalid for failing to meet the written description requirement.

Pet. 141–142 (internal citations omitted).

Patent Owner asserts that Petitioner has failed to show that the claims lack written description support. Prelim. Resp. 72–82. Patent Owner argues

that Petitioner has failed to offer a properly supported claim construction. *Id.* at 74.

Patent Owner additionally sets forth its claim construction, discussed above. *Id.* at 75–80. Of note, Patent Owner states that Petitioner’s construction of “aperture” “lacks any support in the specification.” *Id.* at 80. The two proposed constructions for aperture are compared below.

Petitioner’s construction	“A 3-D hole (i.e., the entire pathway for a cable in the [undermold/primary mold]) that exists when viewed as if the entire cable is removed.” Pet. 14–15.
Patent Owner’s construction	“the entire pathway of the [feeder cable/drop line] within the [undermold or primary mold] when viewed as if the [feeder cable or drop line] were removed.” Prelim. Resp. 10.

Despite Patent Owner’s statement that Petitioner’s construction of “aperture” is unsupported, the two proposals appear similar.

The crux of Patent Owner’s argument is that the term “aperture extending partially” should be construed to mean that the aperture is coextensive with its respective drop line (*id.* at 12) such that the dual drop line lead assemblies (*e.g.*, Figure 37, reproduced above) illustrated by the figures would embody the second and third apertures “extending partially through the undermold.” *Id.* at 76–80. Under such a construction, Patent Owner argues, the claims are supported by the drawings.

b. Analysis

Petitioner’s briefing is insufficient to show that it is more likely than not that the claims of the ’153 patent are invalid for failure to comply with the written description requirement. The Petition includes some language suggesting that the original 2015 disclosure of the ’254 patent does not

demonstrate possession of the subject matter of the present claims because the “extending partially” limitations were introduced by the Examiner. Pet. 138–141. It is true that the Examiner suggested particular claim language that included the term “second aperture only partially extending through said undermold.” Ex. 2021, 103–105. This, however, does not demonstrate a lack of written description support so long as the claims do not go beyond the bounds of the original disclosure. *See, e.g.*, MPEP § 1302.04 (“Examiner’s Amendments and Changes”). Petitioner substantially concedes, and we determine, that Figure 7 of the ’153 patent (and the ’254 parent patent) provides support for the “second aperture extending partially through the undermold.” Pet. 141. Thus, contrary to Petitioner’s argument, the intrinsic record does offer guidance to a person of ordinary skill in the art on how to understand the aperture structure within the claimed molds, and how to determine whether an aperture extends completely or partially through the mold. *See* Pet. 141.

Moreover, “the level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). For example, the analysis must consider “the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, [and] the predictability of the aspect at issue.” *Id.* Petitioner fails to adequately address these considerations in its analysis. This is especially problematic considering Figure 7 shows a second aperture extending partially through the mold in a single drop line configuration (consistent with the construction adopted here), the

specification refers to embodiments including “at least one drop line joined to a feeder cable at a *nexus*,” and several figures show a dual drop line configuration. Ex. 1001, 1:63–66; *see, e.g.*, Figs. 29, 31, 33, 38, 47.

In a post-grant review, a trial will not be instituted unless it is determined that “it is more likely than not” that a claim would have been unpatentable. 35 U.S.C. § 324(a). Here, Petitioner has not met that standard.

4. *Indefiniteness*

Section 112 of the Patent Statute requires that a patent specification “shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor ... regards as the invention.” 35 U.S.C. § 112(b). This is commonly referred to as the definiteness requirement.

The Board applies in post-grant reviews the same indefiniteness standard as used in federal courts under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014), and its progeny. USPTO Memorandum, Approach to Indefiniteness Under 35 U.S.C. § 112 in AIA Post-Grant Proceedings (Jan. 6, 2021).⁸ Under *Nautilus*, “[a] patent is invalid for indefiniteness if its claims, read in light of the patent’s specification and prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 572 U.S. at 898–99. “[A] patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them,” but the present

⁸ Available at <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>.

standard recognizes that “absolute precision is unattainable.” *Id.* at 899 (internal quotation marks omitted).

Petitioner argues that it is able to articulate several different tests that may be applicable to determining whether an aperture extends partially through an undermold or totally/completely through an undermold. Pet. 142–150. One cannot establish indefiniteness, however, by “merely identify[ing] different ways one could interpret” a limitation. *See ClearOne, Inc. v. Shure Acquisition Holdings, Inc.*, 35 F.4th 1345, 1351 (Fed. Cir. 2022). “Such a test would render nearly every claim term indefinite so long as a party could manufacture a plausible construction.” *Nevro Corp. v. Bos. Sci. Corp.*, 955 F.3d 35, 41 (Fed. Cir. 2020).

Here, using traditional principles of claim construction, we were able to construe the terms at issue “with reasonable certainty.” Accordingly, we determine that, at this stage of the proceeding, Petitioner has not shown that it is more likely than not that the claims are indefinite.

III. DISCRETIONARY DENIAL

Petitioner briefly argues that there is no basis for discretionary denial under 35 U.S.C. § 314(a) because the *Fintiv* Factors (which bear upon whether discretionary denial is appropriate in view of other pending proceedings) weigh against discretionary denial. Pet. 150–151. Petitioner argues that several factors, including the parallel district court having been stayed, weigh against discretionary denial. *Id.*

Petitioner additionally argues that there is no basis for discretionary denial under 35 U.S.C. § 325(d) (which concerns whether discretionary denial is appropriate in view of the same prior art or arguments having been

previously presented to the Office). Petitioner argues that Solon, Amphenol, Shao, and Tamura are materially different from the references relied upon by the examiner during prosecution. *Id.* at 152. Petitioner additionally argues that its arguments do not overlap with those made during examination. *Id.* at 153. Petitioner further asserts that it was error for the examiner not to assert Solon, Amphenol, Shao, and Tamura during prosecution. *Id.*

Patent Owner does not present argument regarding discretionary denial.

In view of the absence of argument from Patent Owner and minimal evidence bearing upon discretionary denial, we determine that there is no basis for discretionary denial.

IV. CONCLUSION

For the reasons discussed above we deny institution.

V. ORDER

Upon consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied, and no trial is instituted.

PGR2024-00022
Patent 11,689,153 B2

FOR PETITIONER:

Robert Hansen
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