NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

CAMERON INTERNATIONAL CORPORATION,
Appellant

v.

NITRO FLUIDS, L.L.C.,
Cross-Appellant

2021-1183, 2021-1267

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2019-00852.

Decided: March 4, 2022

JOHN R. KEVILLE, Winston & Strawn, Houston, TX, argued for appellant. Also represented by WILLIAM LOGAN, MERRITT D. WESTCOTT; RICHARD L. STANLEY, Law Office of Richard L. Stanley, Houston, TX.

J. DAVID CABELLO, Cabello Hall Zinda PLLC, Houston, TX, argued for cross-appellant. Also represented by JAMES H. HALL, STEPHEN D. ZINDA.

Before LOURIE, CHEN, and CUNNINGHAM, *Circuit Judges*.

CHEN, *Circuit Judge*.

Cameron International Corporation (Cameron) owns U.S. Patent 9,932,800 ('800 patent). In March 2019, Nitro Fluids, L.L.C. (Nitro) filed a petition for *inter partes* review of claims 1, 3–5, 7, 8, 11–14, 17, and 18, among others. The Patent Trial and Appeal Board (Board) determined that claims 1, 3, 4, 7, 8, and 17 were anticipated by U.S. Patent Publication No. 2009/0114392 (Tolman) and that claim 5 was unpatentable as obvious in view of Tolman and U.S. Patent Publication No. 2009/0194273 (Surjaatmadja). *Nitro Fluids, L.L.C. v. Cameron Int'l Corp.*, IPR2019-00852, 2020 WL 5239811, at *25 (P.T.A.B. Sept. 2, 2020) (*Final Written Decision*). The Board upheld the patentability of claims 11–14 and 18. *Id.* Cameron appeals with respect to the claims the Board found to be unpatentable and Nitro cross-appeals with respect to the claims the Board upheld. For the following reasons, we *affirm*.

BACKGROUND

A

The patented technology relates to infrastructure for hydraulic fracturing. To extract natural gas using hydraulic fracturing, fracturing fluid is pumped into a pre-drilled well at high pressures to "fracture" geological formations that contain natural gas. '800 patent col. 1 ll. 30–42. Additional chemicals, known as propping agents, are then added to the system to assist with the flow of the natural gas into the well and, eventually, to the surface for processing. The claimed invention relates to the phase of hydraulic fracturing where the fracturing fluid is pumped into the well at high pressures.

The fracturing fluid is stored in a tank or some other article and is pumped into a structure known as the fracturing manifold. *Id.* col. 4 ll. 6–13, FIG. 1. The fracturing manifold intakes the fracturing fluid and, through a series

of pipes, valves, and other components, directs that fluid to another structure, a fracturing tree. *Id.* col. 1 ll. 42–44, FIG. 3. A fracturing tree is an above-ground construction also consisting of pipes, valves, and other components that corresponds and connects to an underground well. *Id.* col. 1 ll. 28–30, FIG. 1. A given fracturing system can have multiple wells and multiple corresponding fracturing trees. *Id.* col. 3 ll. 55–57, FIG. 2. The parties dispute the meaning of "fracturing manifold" and "fracturing tree," as well as whether the prior art discloses the patented means for connecting the two.

Claim 1 of the '800 patent is representative and recites:

> 1. A system comprising:
>
> a fracturing manifold;
>
> a plurality of fracturing trees; and
>
> a plurality of fluid conduits coupled between the fracturing manifold and the plurality of fracturing trees to enable receipt of fracturing fluid by the plurality of fracturing trees from the fracturing manifold, wherein each fracturing tree of the plurality of fracturing trees coupled to the fracturing manifold is coupled to the fracturing manifold by at least one rigid fluid conduit of the plurality of fluid conduits so as to provide one and only one rigid fluid pathway from the fracturing manifold to the fracturing tree, and the one and only one rigid fluid pathway is not coupled to the fracturing manifold to provide the fracturing fluid from the fracturing manifold to any other fracturing tree.

Claims 3–5, 7, and 8, also at issue on appeal, depend from claim 1. Claim 11 is an independent claim reciting a similar structure and claim 17 is an independent claim

directed to a corresponding method. Claims 12–14 and claim 18 depend from claims 11 and 17, respectively.

B

In its Final Written Decision, the Board construed two terms relevant to this appeal. First, the Board construed "fracturing manifold" as "a flow path for the distribution of fracturing fluid from a source of fracturing fluid to one or more fracturing trees that includes at least one valve." *Final Written Decision*, at *7. In support of the valve portion of its construction, the Board cited specification passages that consistently describe the fracturing manifold as having a valve and noted that expert testimony supported the conclusion that a skilled artisan would have understood "fracturing manifold" to include a valve. *Id.* at *5, *7. Second, the Board construed "fracturing tree" as "a tree used to facilitate a fracturing process, and does not require a tree of a particular size or weight or a tree that is temporarily installed only for the fracturing process." *Id.* at *9. While acknowledging that a fracturing tree can be installed temporarily and is typically heavier and larger than other types of trees, the Board concluded, based on both the intrinsic and extrinsic evidence, that a "fracturing tree" did not "necessarily" have those qualities, which Cameron sought to incorporate into the construction. *Id.* at *8. Based on both claim constructions, the Board determined that Tolman disclosed the "fracturing manifold" and "fracturing tree" limitations. *Id.* at *10–11.

In addition, the Board found that Tolman discloses "one and only one rigid fluid conduit," another limitation at issue on appeal. *Id.* at *11–12. In particular, the Board found that "Tolman's Figure 2 clearly shows one line going from the fracturing manifold to each of the trees" and a skilled artisan would have understood the "pipes" in Tolman to be composed of a rigid material. *Id.* at *12. The Board rejected Cameron's argument that Figure 2 of Tolman was merely a block-diagram representation of a

complicated "frac-iron" system where each single line in Tolman is "really multiple lines" made of flexible hoses. *Id.*

As a result, the Board concluded claims 1, 3, 4, 7, 8, and 17 were unpatentable under § 102 in view of Tolman and claim 5 was unpatentable under § 103 as obvious in view of Tolman and Surjaatmadja. *Id.* at *25. The Board upheld claims 2, 6, 9–16, 18, and 19 as not unpatentable.

This appeal and cross-appeal followed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

Cameron's appeal presents three main arguments. First, Cameron challenges the Board's construction of "fracturing manifold," arguing that the Board should have required that element to "direct fracturing fluid supply to individual wells." Appellant's Br. 62. Second, Cameron argues that the Board improperly declined to construe "fracturing tree" as a type of tree "installed specifically for the fracturing process" that can "withstand the highly-abrasive, high-pressure fracturing process." *Id.* at 65–66. Third, Cameron argues that Tolman cannot anticipate any of the claims because Tolman does not clearly, specifically, and unambiguously disclose "one and only one rigid fluid pathway." *See, e.g.*, *id.* at 36. Cameron contrasts prior art "frac-iron" systems—where multiple fluid lines converge on a fracturing tree—with the patented invention, which replaces the multiple flow paths with one. *Id.* at 43, 49. Tolman, Cameron argues, must be the former. *Id.* at 46 (comparing Tolman's Figure 2 to a prior art "frac-iron" system).

Nitro cross-appeals, arguing that the Board improperly failed to consider Nitro's § 103 arguments when determining that claims 11–14 and 18 were not unpatentable. Appellee's Br. 70, 78, 80. With respect to the construction of "fracturing manifold," Nitro argues that the Board erred by requiring the structure to have "at least one valve." *Id.* at

70. Instead, Nitro argues, the Board should have construed the term to mean "fluid lines used to provide fracturing fluid to one or more fracturing trees." *Id.* at 77. We address each argument in turn.

A

We review the Board's claim construction de novo and its subsidiary fact findings, including the Board's conclusions regarding extrinsic evidence related to the plain and ordinary meaning of a term, for substantial evidence. *See HTC Corp. v. Cellular Commc'ns Equip., LLC*, 877 F.3d 1361, 1367 (Fed. Cir. 2017); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1280 (Fed. Cir. 2015). Because Nitro filed its petition for *inter partes* review after November 13, 2018, we apply the *Phillips* claim construction standard. 37 C.F.R. § 42.100(b) (2018).

1

The parties appeal different aspects of the construction of "fracturing manifold," which the Board construed to mean "a flow path for the distribution of fracturing fluid from a source of fracturing fluid to one or more fracturing trees that includes at least one valve." *Final Written Decision*, at *7. As an initial matter, Cameron waived its challenge to the Board's construction of "fracturing manifold" by agreeing that the Board's construction was "sufficient for the limited purpose of this proceeding." J.A. 354 (*Patent Owner Response*); *see also* J.A. 453 (*Patent Owner Sur-Reply*) ("The Board is correct that the '800 Patent's fracturing manifold requires at least one valve."). Regardless, upon review of the merits, we affirm the Board's construction. *See Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd.*, 955 F.3d 1317, 1322 (Fed. Cir. 2020) ("While there is 'no general rule' for when we exercise our discretion to reach waived issues, we have done so where, among other factors, 'the issue has been fully briefed by the parties.'" (internal citation omitted) (first quoting *Singleton v. Wulff*, 428 U.S.

106, 121 (1976); and then *Automated Merch. Sys., Inc. v. Lee*, 782 F.3d 1376, 1279–80 (Fed. Cir. 2015))).

Cameron argues that "fracturing manifold" should be construed to require that it be able to direct fluid to only one fracturing tree. Appellant's Br. 62; Appellant's Resp. & Reply Br. 45. But the specification consistently describes the fracturing manifold as capable of directing fracturing fluid to one or more fracturing trees. '800 patent col. 1 ll. 42–44 ("A fracturing manifold may provide fracturing fluid to one or more fracturing trees via fracturing lines (e.g., pipes)."); *id.* col. 1 ll. 60–64 ("[A] fracturing system includes a fracturing manifold coupled to multiple fracturing trees via fluid conduits . . . ."); *id.* col. 5 ll. 65–67 ("[I]t will be appreciated that the fracturing system 10 may include additional fluid connections 26 and fracturing trees 20 . . . ."); *id.* FIG. 2. We are not persuaded by Cameron's arguments for narrowing the meaning of the term. *See i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 842 (Fed. Cir. 2010) (declining to narrow claim terms where there was no "clear intent").

We also decline to adopt Nitro's proposed construction that strikes "at least one valve" from the Board's construction. Contemporaneous publications and expert testimony credited by the Board consistently describe fracturing manifolds as having at least one valve. For example, two separate industry publications describe a "fracturing manifold" as "[a] system of frac valves" and "[a]n accessory system of valves and piping." *Final Written Decision*, at *7 (quoting J.A. 2328 and J.A. 2487). And Cameron's expert testified that a "fracturing manifold" is "a series of pipes, connections, and valves that direct fracturing fluid from a fracturing fluid supply to individual wells." J.A. 2125; *see also* J.A. 2127 (describing fracturing manifolds in prior art references as "includ[ing] a number of valves" and "formed by coupling portions of the manifold and associated flow components such as valves and fluid fittings"); *Final Written Decision*, at *5. To the extent the parties dispute the

Board's reliance on expert testimony and extrinsic evidence, we find that the Board's factual determinations are supported by substantial evidence. *See In re Cuozzo Speed Techs.,* 793 F.3d at 1280.

The Board's construction is also consistent with the specification of the '800 patent, which describes the claimed fracturing manifold as not simply a structure for distributing fracturing fluid, but one that relies on at least one valve to do so. *See* '800 patent col. 3 ll. 48–51 ("[T]he fracturing manifold 22 includes at least one valve . . . ."); *id.* col. 3 ll. 59–63 ("In one embodiment . . . various valves of the fracturing manifold 22 may be mounted on separate skids . . . ."). *See Ancora Techs., Inc. v. Apple, Inc.*, 744 F.3d 732, 734 (Fed. Cir. 2014) ("A claim term should be given its ordinary meaning in the pertinent context, unless the patentee has made clear its adoption of a different definition or otherwise disclaimed that meaning.").

We have considered the parties' remaining arguments regarding the construction of "fracturing manifold," including claim differentiation, and do not find them persuasive. We therefore affirm the Board's construction of "fracturing manifold" as "a flow path for the distribution of fracturing fluid from a source of fracturing fluid to one or more fracturing trees that includes at least one valve."

2

Cameron also appeals the Board's construction of "fracturing tree." The Board construed "fracturing tree" as "a tree used to facilitate a fracturing process, and does not require a tree of a particular size or weight or a tree that is temporarily installed only for the fracturing process." *Final Written Decision*, at *9. We agree.

The specification, including the claims, indicates that a "fracturing tree" is a system component designed to receive fracturing fluid. For example, claim 1 describes a "plurality of fracturing trees to enable receipt of fracturing

fluid by the plurality of fracturing trees from the fracturing manifold." '800 patent, claim 1; *see also id.* col. 4 ll. 22–28 ("The manifold 22 includes a conduit 42 that routes fracturing fluid to valves 44 and 46 . . . . The fracturing fluid may then be routed through fluid connection 26 to a respective fracturing tree 20."). A "fracturing tree," as described in the specification, can take different forms, *see, e.g.*, *id.* col. 4 ll. 28–43 (describing "vertical" and "horizontal" fracturing trees), and is capable of receiving "production fluid," a chemical used during the production (not fracturing) phase of hydraulic fracturing, *id.* col. 4 ll. 43–47 ("The tree 20 also includes a master valve 54 to control flow of fluids (e.g., fracturing fluids or production fluids) to or from the attached wellhead . . . ."). We therefore agree with the Board that a "fracturing tree" need not be specifically dedicated solely to the fracturing process. Additionally, while a "fracturing tree" might "usually ha[ve] a higher pressure rating, and [a] larger internal diameter," J.A. 804 (declaration of Nitro's expert), and "are typically bulkier and heavier," J.A. 2220 (declaration of Cameron's expert), as the Board found, there is insufficient support for a construction mandating these additional attributes. *See Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1352–53 (Fed. Cir. 2016). Accordingly, we affirm the Board's construction of "fracturing tree."

B

We review the Board's findings regarding the disclosures of prior art references, including whether the prior art sufficiently enables the relevant disclosures, for substantial evidence. *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1380 (Fed Cir. 2021); *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1064 (Fed. Cir. 2018). "A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding." *Genentech, Inc. v. Hospira, Inc.*, 946 F.3d 1333, 1337 (Fed. Cir. 2020).

Cameron appeals the Board's finding that Tolman discloses "one and only one rigid fluid pathway." In particular, Cameron argues that: (1) Tolman does not disclose a single fluid conduit, Appellant's Br. 40–46, (2) Tolman does not disclose rigid pipes, *id.* at 46–49, and (3) Tolman cannot anticipate any claim because it discloses only a generic block diagram that is too vague and ambiguous, *id.* at 36–40, 54–57. We disagree and hold that substantial evidence supports the Board's finding that Tolman discloses "one and only one rigid fluid pathway."

The Board found that Tolman discloses a single fluid conduit between the fracturing manifold and a given fracturing tree based on Figure 2 (depicted below) and related portions of the specification:

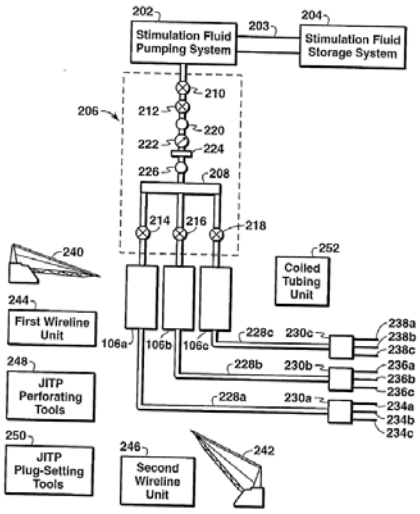

FIG. 2

Tolman FIG. 2. "Tolman's Figure 2 clearly shows one line going from the fracturing manifold [206] to each of the trees 106a–106c . . . . Tolman also discloses precisely three valves, 214, 216, and 218, that may be opened and closed in such a manner as to allow fracturing fluid to flow into

one of the wells while the other wells are isolated from the pumping system." *Final Written Decision*, at *12.

The Board's conclusion is consistent with the stated purpose of Tolman: to allow a user to pump fracturing fluid into one well while preparing a second well for a different process. Tolman Abstract. As the Board observed, to accomplish this, Tolman utilizes valves 214, 216, and 218 to isolate each fracturing tree. Tolman ¶ 31. For example, while fracturing tree 106a is being treated, valve 214 is open and valves 216 and 218 remain closed, thereby isolating fracturing tree 106a. *Id.*; *see also id.* ¶ 37.

The Board also considered and rejected Cameron's arguments that the single lines depicted in Tolman Figure 2 "are really multiple lines in the form of frac-iron." *Final Written Decision*, at *12. At least because (1) Tolman's specification does not describe a multi-line frac-iron system, (2) prior art references indicate that non-frac-iron systems existed,[1] and (3) Tolman is capable of isolating fracturing trees with only a single valve per tree, the Board's finding rejecting Cameron's argument is supported by substantial evidence.

The Board's conclusion that Tolman discloses a rigid, single fluid conduit is also supported by substantial evidence. Tolman plainly provides that its pipes "may be high pressure steel lines or low pressure hoses depending on the specific application." Tolman ¶ 29; *see also id.* ¶ 28 ("The piping 228a–228c may include high pressure steel lines utilized in oil field applications."). We disagree with Cameron that the Board relied on the inherency doctrine and that

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[1] For example, Nitro presented to the Board and described on appeal U.S. Patent Publication No. 2012/0181015 A1 (*Kajaria*) and U.S. Patent Publication No. 2011/0030963 (*Demong*), each of which describe non-frac-iron systems. Appellee's Br. 6–9.

Nitro needed to do more to prove that Tolman's pipes are "necessarily rigid." Appellant's Br. 28; *see PersonalWeb Techs., LLC v. Apple, Inc.*, 917 F.3d 1376, 1382 (Fed. Cir. 2019) (describing inherency as covering "the natural result flowing" from an express teaching). Rather, Cameron fails to appreciate that Tolman discloses alternatives, one of which expressly involves the use of rigid (steel) pipes. Additionally, the Board did not err in crediting expert testimony that "the ordinary meaning of 'pipe' is a rigid pipe, for example, a steel pipe." *Final Written Decision*, at *12 (quoting J.A. 825).

Cameron also challenges the Board's reliance on Tolman generally, arguing that its disclosure is too generic and ambiguous and that Figure 2 is nothing more than a non-specific block diagram. Appellant's Br. 40, 54. Cameron contends a skilled artisan would at best interpret Tolman as describing a frac-iron system, which has multiple lines between the fracturing manifold and fracturing tree. *Id.* at 26, 36, 43–45, 49–53.

First, as described above, we agree with the Board that Tolman does not describe a frac-iron system. We therefore disagree with Cameron's arguments that the Board improperly relied on hindsight.

Second, we defer to the Board's factual findings regarding what a reference discloses and whether it is ambiguous. *See Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (affirming the Board's finding that a reference was too ambiguous to anticipate a claim where record evidence supported the conclusion). Here, the Board considered Tolman's disclosures, contemporaneous references, expert testimony, and attorney argument and concluded that Tolman "clearly shows" a single fluid conduit and discloses that the conduit can be rigid. *Final Written Decision*, at *12. Based on the record, the Board's conclusion is reasonable and supported by substantial evidence. Additionally, we similarly reject Cameron's related

enablement argument because prior art published patent applications are presumed enabling and Cameron does not present any evidence or meaningful argument as to why a skilled artisan could not make and use Tolman's disclosed single-line system. *See Impax Lab'ys, Inc. v. Aventis Pharms., Inc.*, 545 F.3d 1312, 1316 (Fed. Cir. 2008) (reaffirming that an anticipating prior art patent is presumptively enabled); *In re Antor Media Corp.*, 689 F.3d 1282, 1288 (Fed. Cir. 2012) (extending the presumption to printed publications); *Apple Inc. v. Corephotonics, Ltd.*, 861 F. App'x 443, 449 (Fed. Cir. 2021) ("It is well-established that prior art patents and printed publications . . . are presumed enabling."). We therefore affirm the Board's decision regarding the disclosures of the Tolman reference, and, by extension, the Board's finding that Tolman anticipates claims 1, 3, 4, 7, 8, and 17 and, in combination with Surjaatmadja, renders obvious claim 5. *Final Written Decision*, at *25.

C

In addition to the Board's construction of "fracturing manifold," Nitro also cross-appeals to argue that the Board erred by declining to consider its argument that claims 11, 12–14, and 18 are unpatentable as obvious under § 103 based on Tolman in combination with Surjaatmadja. Appellee's Br. 78–80. We have already rejected Nitro's arguments on "fracturing manifold." For Nitro's other argument, we review the Board's findings concerning whether arguments are fairly presented for abuse of discretion. *See Ericsson Inc. v. Intell. Ventures I LLC*, 901 F.3d 1374, 1379 (Fed. Cir. 2018); *Altaire Pharms., Inc. v. Paragon Bioteck, Inc.*, 889 F.3d 1274, 1284 (Fed. Cir. 2018), *remand order modified by stipulation*, 738 F. App'x 1017 (Fed. Cir. 2018). Based on our review of Nitro's petition, we find that the Board's conclusion that Nitro failed to fairly present an obviousness analysis for claims 11, 12–14, and 18 does not constitute an abuse of discretion. Because we also disagree with Nitro that the Board improperly

conflated its obviousness and anticipation analyses, we affirm the Board's finding upholding claims 11, 12–14, and 18 as not unpatentable.

CONCLUSION

We have considered parties' remaining arguments and do not find them persuasive. For the foregoing reasons, we affirm.

AFFIRMED

COSTS

No costs.