

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AFFORDABLE WIRE MANAGEMENT, LLC,
Petitioner,

v.

CAMBRIA COUNTY ASSOCIATION
FOR THE BLIND AND HANDICAPPED, INC.,
Patent Owner.

IPR2024-00139
Patent 10,177,551 B1

Before JAMES P. CALVE, FRANCES L. IPPOLITO, and
NATHAN A. ENGELS, *Administrative Patent Judges*.

ENGELS, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. §314

I. INTRODUCTION

Affordable Wire Management, LLC (“Petitioner”) filed a Petition (Paper 1 (“Pet.”)), seeking *inter partes* review of claims 1–19 (the “challenged claims”) of U.S. Patent No. 10,177,551 B1 (Ex. 1001 (“the ’551 patent”). See Pet. 1. Cambria County Association for the Blind and Handicapped, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 14 (“Prelim. Resp.”).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); see 37 C.F.R. § 42.108. Upon consideration of the evidence currently of record, we conclude that the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one challenged claim of the ’551 patent.

A. *Related Matters*

The parties indicate that the ’551 patent is the subject of *Cambria County Association for the Blind and Handicapped, Inc. v. Affordable Wire Management, LLC*, No. 1:23-cv-00080 (D. Del.). Pet. 95; Paper 6, 1.

B. *Real Parties in Interest*

Petitioner identifies Affordable Wire Management, LLC as the real party-in-interest. Pet. 95. Patent Owner identifies Cambria County Association for the Blind and Handicapped, Inc. as the real party-in-interest. Paper 6, 1.

C. The '551 Patent (Ex. 1001)

The '551 patent, titled “Grounding System,” relates to a system to ground electrical power lines “that includes conductive elements whereby grounding cables do not need to be spliced into a conductor wire disposed adjacent a messenger wire, and, to a system wherein a multi-function line provides support and a current path.” Ex. 1001, 1:9–13, code 54. The '551 patent states that in solar, mining and electrical industries there is a need for electrical cables to extend from a power or signal source to a location of application and such cables are usually supported by a number of poles or piles, a messenger wire, and a number of cable hangers. Ex. 1001, 1:17–23. A messenger wire is a robust cable structured to support a number of other wires, but the messenger wire is not structured to carry a current. Ex. 1001, 1:24–28. To protect against lightning strikes or electrical shorts, for example, in the prior art, “a conductor or grounding wire is disposed adjacent the messenger wires” and coupled to a current path to the ground. Ex. 1001, 1:67–2:3. The '551 patent states, however, that the grounding systems and methods of the prior art wires were difficult, time consuming, and expensive. Ex. 1001, 2:12–16. Among other things, the '551 patent describes a “multi-function line” assembly and conductive mounting assemblies that connect a “multi-function line” to conductive piles to provide a path to ground for current in the multi-function line assembly. Ex. 1001, 27–35.

D. Challenged Claims

Petitioner challenges claims 1–19 of the '551 patent. Pet. 14–15. Independent claim 1 is illustrative of the challenged claims and is reproduced below with Petitioner’s labeling added.

1[a]. A grounding system structured to ground a number of cables supported by a support assembly, said support assembly including a plurality of spaced, conductive piles, said grounding system comprising:

1[b] a multi-function line assembly including a multi-function line;

1[c] a number of conductive mounting assemblies, each said conductive mounting assembly structured to be coupled to said multi-function line and to a conductive pile; and

1[d] wherein said multi-function line assembly is coupled to, and in electrical communication with, said number of conductive mounting assemblies.

E. The Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 2):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–12, 18, 19	103	Grushkowitz ¹
1–19	103	CAB Website, ² CAB Whitepaper ³
1–19	103	Petersen ⁴
13–17	103	Petersen, MacLean ⁵
13–17	103	CAB Website, CAB Whitepaper, MacLean

Petitioner also cites the Declaration of Omid Beik, Ph.D. in support of the Petition. Ex. 1002. Patent Owner cites the Declaration of Joshua Phinney, Ph.D. in support of the Preliminary Response. Ex. 2001.

¹ US 10,003,298 B2: published Jun. 19, 2018. Ex. 1003.

² ² CAB Cable Rings and Saddles for Solar PV Arrays Website, Wayback Machine (February 4, 2015) (“CAB Website”). Ex. 1005.

³ Cable Management in Solar PV Arrays; Brooks Engineering; Sept. 1, 2014. Ex. 1006.

⁴ US 3,001,749; published Sept. 26, 1961. Ex. 1004.

⁵ MacLean, “Pole Line Hardware Catalog”, issued May 2010 (“MacLean”). Ex. 1027.

II. ANALYSIS

A. *Legal Standards*

Petitioner bears the burden to demonstrate unpatentability, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable for obviousness if “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.” 35 U.S.C. § 103; *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.⁶ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

B. *Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art “would have had a bachelor’s degree in a pertinent discipline, such as electrical engineering, civil engineering, mechanical engineering or equivalent with 2–3 years of experience in electrical utility systems, planning, and design” and “the number of years of experience could be higher or lower given the level of education and vice versa.” Pet. 23. Patent Owner contends Petitioner’s

⁶ The parties have not directed our attention to any objective evidence of obviousness or non-obviousness.

level of ordinary skill is too high. Prelim. Resp. 32. According to Patent Owner, a person of ordinary skill in the art would have had “an associate degree in an engineering discipline, and 1–2 years’ experience in electrical power systems” and “[a] lack of work experience can be remedied by additional education, and vice versa.” Prelim. Resp. 31 (citing Ex. 2001 ¶ 21).

At this stage, we do not discern a meaningful difference between the parties’ positions regarding the level of ordinary skill in the art, and we preliminarily determine a person of ordinary skill in the art would have had a bachelor’s degree in an engineering discipline and two years of experience in electrical power systems.

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). See 37 C.F.R. § 42.100(b) (2021). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Both parties identify “multi-function line” as a claim element requiring construction. Petitioner contends the ’551 patent’s specification

explicitly defines “multi-function line” as “‘a tension member that supports current wires and/or cable hangers’ and ‘is conductive.’” Pet. 23 (quoting Ex. 1001, 2:37–40). Patent Owner states that “[i]n light of the claim language, the specification, and the ’551 [p]atent’s prosecution history, ‘multi-function line’ means ‘a tension member that supports current wires and/or cable hangers, as a messenger wire, and which provides a current path, as a grounding conductor.’” Prelim. Resp. 32 (citing Ex. 2001 ¶ 76).

According to Patent Owner, Petitioner’s definition ignores the specification’s statements that the multi-function line “provides a conductive path, as a grounding conductor.” Prelim. Resp. 34 (quoting Ex. 1001, 2:35–37). Patent Owner argues the specification makes clear that a multi-function line “is not merely conductive by virtue of being made of metal, but that it is sufficiently conductive so as to provide a conductive path as a grounding conductor” and that a messenger wire is not a “multi-function line.” Prelim. Resp. 34 (citing Ex. 1001, 2:40–41) (emphasis omitted).

Although we determine it is unnecessary to expressly construe “multi-function line” at this stage, we present the following discussion and encourage the parties to further address the term in future briefing. As an initial matter, we note that the specification distinguishes the claimed “multi-function line” from messenger wires of the prior art. First, the specification states that in the prior art, “a conductor or grounding wire [was] disposed adjacent the messenger wires; hereinafter, such a wire is identified as a grounding conductor.” Ex. 1001, 1:67–2:3.

Next, the specification states that the grounding system of the ’551 patent includes a “multi-function line assembly and a number of conductive mounting assemblies.” Ex. 1001, 2:27–29. “Each conductive mounting

assembly is structured to be, and is, coupled to the multi-function line and to a conductive pile. This configuration provides a path to ground for a current in the multi-function line assembly.” Ex. 1001, 2:29–33. “Further, the multi-function line supports the cable hangers (which support the current wires, data wires and other wires). That is, a single multi-function line supports the cable hangers, *as a messenger wire*, and provides a current path, *as a grounding conductor*.” Ex. 1001, 2:33–37 (emphasis added).

And the sentence following that passage, which is cited by both parties, states: “Accordingly, as used herein, a ‘multi-function line’ means a tension member that supports current wires and/or cable hangers, and, which is conductive.” Ex. 1001, 2:37–40. The sentences immediately following that sentence provide additional context, stating: “That is, a messenger wire is not a ‘multi-function line.’ Similarly, a conductor that does not support other constructs is not a ‘multi-function line.’” Ex. 1001, 2:40–42.

We currently understand that, read in context, the statement that “a messenger wire is not a ‘multi-function line” (Ex. 1001, 2:40–42) means that a “multi-function line” is not merely a messenger wire of the prior art that requires a separate conductor or grounding wire; a “multi-function line” must be both a conductor and a tension member that supports “other constructs,” *e.g.*, cable hangers and/or current wires, as a messenger wire.

The relevant intrinsic record also includes certain parts of the prosecution history of the ’551 patent. In relevant part, the Examiner rejected certain claims as anticipated by Korman,⁷ stating that Korman discloses the claimed multi-function line that includes a tension line because

⁷ US 2012/0024563 A1, published Feb. 2, 2012.

“the weight of [Korman’s] line 60 (mass + gravity) creates weight force which is pulling down on the line between connectors 42, 43 and this forms a tension line.” Ex. 1037, 131. Among other things, the Applicant argued in response that in Korman, ““the dc grounding conductor path 60’ is via the frames which are coupled via the connectors 42, 43. That is, Korman never discloses a wire, cable, or any other tension member.” Ex. 1037, 142; *accord* Ex. 1037, 141 (“Korman discloses a system wherein metal frames and metal units coupled to the frame are in electrical communication via electrical couplings, *i.e.*, plugs. Simply put, the Korman systems does not include any cables, wires or any other tension member.”) (emphasis omitted), 143 (“Nothing in Korman discloses that element 60 is a tension member.”). The Applicant subsequently argued in an appeal brief that “tension member” means “a construct that has a maximum length when exposed to tension, but is otherwise substantially flexible, such as, but not limited to, a chain or a cable. That is, the term ‘tension member’ is used to describe the ‘multi-function line’ which replaces the messenger wire used in the prior art.” Ex. 1037, 173. The Applicant also reiterated in the appeal brief the arguments that Korman does not disclose a cable or wire. Ex. 1037, 179–182. The Examiner then issued a notice of allowability in response to the appeal brief. Ex. 1037, 207. We preliminarily understand the intrinsic evidence to indicate that the term “tension member” used to describe the multi-function line refers to a cable or wire.

On this preliminary record and for the purposes of this Decision, we preliminarily determine that the appropriate construction of “multi-function line” is not limited to the single statement quoted by Petitioner and includes context provided by the intrinsic record. Although we do not expressly

construe “multi-function line” for the purposes of this decision, at this stage we are persuaded that Patent Owner’s proposed interpretation is more in keeping with the intrinsic record than Petitioner’s proposed interpretation. *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.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). The parties are encouraged to develop the record regarding claim construction in future briefing.

D. Alleged Obviousness of Claims 1–19 Based on CAB Website and CAB Whitepaper

Petitioner provides a limitation-by-limitation comparison of each of claims 1–19 to the teachings of CAB Website and CAB Whitepaper. Pet. 13–50. We address Petitioner’s contentions and Patent Owner’s responsive arguments regarding claim 1 as illustrative.

1. Independent Claim 1

a. 1[a]. A grounding system structured to ground a number of cables supported by a support assembly, said support assembly including a plurality of spaced, conductive piles, said grounding system comprising:

Petitioner does not address whether some or all the preamble is limiting, but Petitioner states that to the extent that the preamble is limiting, “the CAB Website in view of the CAB [Whitepaper] discloses it or renders it obvious.” Pet. 48. According to Petitioner, the CAB Website “depicts a support assembly supporting current-carrying cables comprising a plurality of spaced conductive piles, mounting brackets, and a messenger wire (multi-function line).” Pet. 48–50 (citing Ex. 1005, 5; Ex. 1008 ¶ 108). Petitioner

also states that the CAB Whitepaper discloses the same grounding and support system structured to ground current conducting cables that are supported by a support assembly, as well as spaced conductive piles.

Pet. 50–51 (citing Ex. 1006, 3; Ex. 1008 ¶ 111).

b. 1[b] a multi-function line assembly including a multi-function line;

Citing Petitioner’s proposed definition of “multi-function line” addressed above, Petitioner contends the CAB Website “depicts a metal, and therefore conductive, messenger wire that supports current-carrying cables and hangers. Pet. 51–52 (citing Ex. 1005, 5; Ex. 1002 ¶ 113). Petitioner further states that the CAB Whitepaper depicts a metal messenger wire attached to spaced piles supporting current carrying cables and hangers. Pet. 52–53 (citing Ex. 1006, 6, 8).

Petitioner further states that a person of ordinary skill in the art “would have understood that the messenger wire depicted in the CAB Website and CAB Whitepaper is metal (i.e. conductive), and subject to tensile forces from gravity and the weight current wires and/or cable hangers supported thereon.” Pet. 53 (Ex. 1002 ¶¶ 114–115). Further, according to Petitioner, “[t]hough the CAB Website and CAB Whitepaper do not expressly disclose the terminal support portion of the multi-function line assembly, it would have been obvious to a [person of ordinary skill in the art] that terminal supports are necessary in order for the assembly to be NEC compliant, and provide adequate support for the weight of the multi-function line.” Pet. 53–54 (citing Ex. 1002 ¶ 115, 151).

- c. 1[c] a number of conductive mounting assemblies, each said conductive mounting assembly structured to be coupled to said multi-function line and to a conductive pile; and*

Petitioner contends the CAB Website depicts mounting assemblies comprised of metallic (conductive) components structured to couple a multi-function line and to a metallic (conductive) pile. Pet. 54 (citing Ex. 1005, 5; Ex. 1002 ¶ 117). Petitioner also contends the CAB Whitepaper depicts a nearly identical conductive mounting assembly. Pet. 55 (citing Ex. 1006, 3; Ex. 1002 ¶ 118).

- d. 1[d] wherein said multi-function line assembly is coupled to, and in electrical communication with, said number of conductive mounting assemblies.*

Petitioner contends the CAB Website and the CAB Whitepaper disclose a multi-function line assembly coupled to a conductive mounting assembly. Pet. 55. Petitioner also states that a person of ordinary skill in the art would have understood that connecting metallic (conductive) components would result in such components being in electrical communication with one another. Pet. 55–56 (citing Ex. 1002 ¶ 120). Petitioner further states that the CAB Whitepaper discloses utilizing a grounded steel messenger wire, “which [a person of ordinary skill in the art] would have understood to mean the messenger wire (multi-function line) is in electrical communication with the mounting assembly, and conductive pile.” Pet. 56 (citing Ex. 1002 ¶ 121).

e. Patent Owner’s Arguments

Patent Owner contends Petitioner’s arguments are erroneous as premised on the belief that mere metal-to-metal contact is sufficient for the CAB Website or the CAB Whitepaper messenger wire to function as a grounding conductor as claimed. Prelim. Resp. 46. According to Patent

Owner, a person of ordinary skill in the art would have understood the references' messenger wires to only be grounded and not to be functioning as an equipment grounding conductor. Prelim. Resp. 46 (citing Ex. 2001 ¶¶ 164, 171), 48–49 (citing Ex. 2001 ¶¶ 163–164; Ex. 1007, 118). Patent Owner further states that the CAB Website says nothing about grounding and that “[a] messenger wire clamped to a metal pile as depicted in the CAB Website and described in the CAB Whitepaper, without more, does not inform a [person of ordinary skill in the art] that the messenger wire provides support for electrical cables *and* serves as a grounding conductor for the system so as to constitute a ‘multi-function line’ as defined by the patent.” Prelim. Resp. 47 (citing Ex. 2001 ¶¶ 158–159).

Patent Owner additionally argues that “the phrase ‘structured to’ in the context of the ’551 patent requires each of the conductive mounting assemblies to be intended to and designed to be coupled to the multi-function line. Because the CAB Website and CAB Whitepaper do not disclose a ‘multi-function line,’ it necessarily follows that they cannot disclose a ‘conductive mounting assembly’ structured to be coupled to an *undisclosed* ‘multi-function line.’” Prelim. Resp. 49–50. Thus, according to Patent Owner, the “metal mounting assemblies” of the CAB Website and the CAB Whitepaper cannot be the claimed “conductive mounting assemblies.” Prelim. Resp. 50.

f. Discussion

At this stage, we are sufficiently persuaded that Petitioner has shown a reasonable likelihood of prevailing in its challenge to claim 1 as

unpatentable based on the CAB Website and the CAB Whitepaper.⁸ Among other things, the '551 patent recognizes that the need for a grounding conductor was known in the art, acknowledging the known use of a wire adjacent to the messenger wires in the prior art and stating that “[t]he grounding conductor must be coupled to a current path to the ground.”

Ex. 1001, 1:60–2:16. The CAB Whitepaper states that the electrical industry is “heavily focused on grounding and bonding of metallic parts,” discusses NEC standards, and refers to a “grounded steel messenger wire.” Ex. 1006, 14. Notably, neither the CAB Website nor the CAB Whitepaper discloses a grounding wire adjacent to the messenger wire; instead, at this stage we are persuaded by Petitioner’s arguments that a person of ordinary skill in the art would have understood that the CAB Website and the CAB Whitepaper to depict a grounding system that includes metal-to-metal contact between metal messenger wires, metal brackets, and metal piles. Pet. 48–51; Ex. 1002 ¶¶ 108–112.

It is not currently clear on this record that Patent Owner’s arguments that the references’ messenger wires being “grounded” meaningfully distinguishes the claim’s requirements of a grounding system. Even under Patent Owner’s proposed interpretation of “multi-function line” (Prelim. Resp. 32, 36), the record supports Petitioner’s positions that a person of ordinary skill in the art would have understood the CAB Website and the CAB Whitepaper to disclose or at least reasonably suggest a messenger wire acting as a tension member that supports cable hangers and current wires

⁸ On the current record, we question whether Petitioner has adequately advanced arguments for combining the teachings of the CAB Website and the CAB Whitepaper. The parties are encouraged to address this issue.

and that provides a current path as a grounding conductor. We are not currently persuaded that the '551 patent's statement that "a messenger wire is not a 'multi-function line'" excludes the messenger wires of the CAB Website or the CAB Whitepaper (Prelim. Resp. 33–34 (citing Ex. 1001, 2:27–40), 44–48); read in the context of the surrounding portions of the specification, we preliminarily understand that statement to mean that a messenger wire that is not conductive does not fall within the definition of a "multi-function line." For example, the specification states: "The grounding system includes a multi-function line assembly and a number of conductive mounting assemblies. Each conductive mounting assembly is structured to be, and is, coupled to the multi-function line and to a conductive pile. This configuration provides a path to ground for a current in the multi-function line assembly." Ex. 1001, 2:27–33. We are also not currently persuaded by Patent Owner's arguments that the phrase "structured to" in claim 1 distinguishes the references' teachings. In sum, at this stage, we are preliminarily persuaded by Petitioner's arguments and evidence that the CAB Website and CAB Whitepaper disclose or at least reasonably suggest the multi-function line as claimed, as well as the remaining limitations of claim 1.

g. Conclusion For Claim 1

On the record before us for the reasons discussed above, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 as being unpatentable in view of the CAB Website and the CAB Whitepaper, and we institute *inter partes* review on all claims and

all grounds asserted in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); Consolidated Trial Practice Guide (Nov. 2019), 64.⁹

E. Alleged Obviousness of Claims 1–12, 18, and 19 Based on Grushkowitz

Among other things, Petitioner contends Grushkowitz’s cable tray 502 satisfies Petitioner’s proposed interpretation of the claimed “multi-function line.” Pet. 27–29. We preliminarily agree with Patent Owner that Grushkowitz’s cable tray does not teach or reasonably suggest the claimed “multi-function line” as that term is understood in light of the claim language and intrinsic record. *See* Prelim. Resp. 41–44.

F. Alleged Obviousness of Claims 1–19 Based on Petersen

Among other things, Petitioner contends Petersen’s neutral messenger cable 27 teaches or suggests the claimed “multi-function line.” Pet. 73–74. We preliminarily agree with Patent Owner that Petersen’s neutral messenger cable does not teach or reasonably suggest the claimed “multi-function line” at least because Petersen discloses that aerial cable holder 35, which is distinct from neutral messenger cable 37, holds conductors 36; it is not clear from Petitioner’s arguments and evidence how Petersen’s neutral messenger cable supports current wires and/or cable hangers, as required by both Petitioner’s and Patent Owner’s proposed interpretations of “multi-function line.” *See* Pet. 23–24, 73–74; Prelim. Resp. 56–58.

III. CONCLUSION

Based on the current record, we determine Petitioner has shown a

⁹ Available at www.uspto.gov/sites/default/files/documents/tpgnov.pdf.

reasonable likelihood of prevailing with respect to at least one claim of the '551 patent. Accordingly, we institute *inter partes* review of all claims challenged on all of the grounds in the Petition.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted as to claims 1–19 of the '551 patent based on the unpatentability challenges presented in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this decision.

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