

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN, INC.,
Patent Owner.

IPR2023-01056
Patent 9,991,030 B2

Before KRISTINA M. KALAN, KIMBERLY McGRAW, and
SHARON FENICK, *Administrative Patent Judges*.

KALAN, *Administrative Patent Judge*.

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

I. INTRODUCTION

CommScope Technologies LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3, 9–14, and 16–18 of U.S. Patent No. 9,991,030 B2 (Ex. 1001, “the ’030 patent”). Belden, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

To institute *inter partes* review, we must determine that the information presented in the Petition shows “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). For the reasons discussed below, after considering the parties’ submissions and the evidence of record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one claim of the ’030 patent, and we institute *inter partes* review on all challenges raised in the Petition. 37 C.F.R. § 42.108.

A. *Related Proceedings*

The parties identify the following district court litigation as a related matter: *Belden, Inc. v. CommScope, Inc.*, Case No. 22-783-RGA (D. Del.). Pet. vi; Paper 4, 1 (Patent Owner’s Mandatory Notices).

B. *Real Parties-in-Interest*

Petitioner identifies CommScope Technologies LLC, CommScope, Inc. of North Carolina, CommScope, Inc., and CommScope Holding Company, Inc. as real parties-in-interest. Pet. vi. Patent Owner identifies Belden, Inc. as the real party-in-interest. Paper 4, 1.

C. The '030 Patent (Ex. 1001)

The '030 patent is titled “High Performance Data Communications Cable,” and relates to a data cable including “a filler for controlled placement of pairs of conductors within a data cable and controlled application angle of an electromagnetic interference (EMI) reducing tape.” Ex. 1001, code (54), 1:17–21. The '030 patent explains that high performance data cables must meet “strict specifications for maximum return loss and crosstalk.” *Id.* at 1:25–38. Crosstalk is caused by EMI between adjacent pairs of conductors in a cable, whereby signal flow in a first pair of conductors generates an electromagnetic field received by a second pair of conductors. *Id.* at 1:39–44. Alien crosstalk (ANEXT) may result between adjacent cables in a typical installation with a large number of cables. *Id.* at 1:44–50, 5:28. The '030 patent discusses cables that reduce internal cable signal return loss and external cable ANEXT coupling noise. *See id.* at 5:27–37. Figure 1 of the '030 patent is reproduced below.

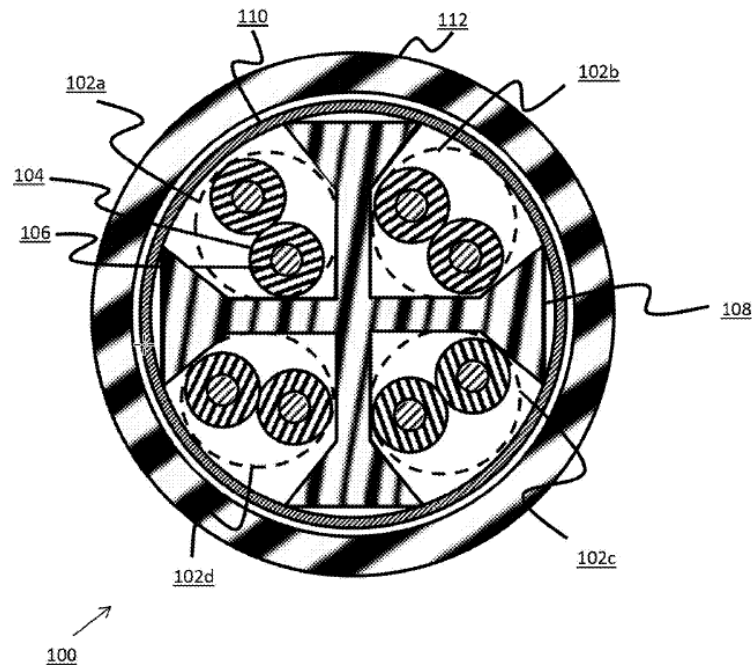


FIG. 1

Figure 1 illustrates a cross-section of an embodiment of an unshielded twisted pair cable incorporating a filler. *Id.* at 4:36–37. Cable 100 includes filler 108 having a cross-section with four arms radiating from a central point thereby forming four channels. *Id.* at 6:54–61. The cable contains four pairs of individual conductors 106, each conductor being surrounded by insulation 104. *Id.* at 6:22–24. Each pair of insulated conductors forms unshielded twisted pairs 102a–102d. *Id.* Conductive barrier tape 110 surrounds filler 108 and twisted pairs 102a–102d. *Id.* at 7:32–34. Jacket 112 surrounds conductive barrier tape 110. *Id.* at 7:55–63.

Figure 3A is reproduced below.

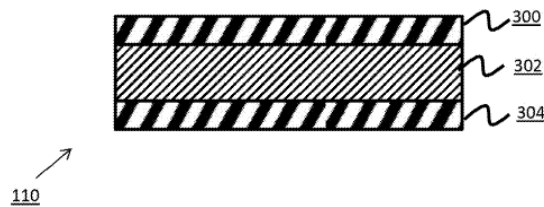


FIG. 3A

Figure 3A illustrates a cross-section of barrier tape 110. *Id.* at 7:38–42. Barrier tape 110 includes conductive material 302 located between two layers of dielectric material 300, 304. *Id.* at 7:42–45. Exemplary conductive materials may include aluminum foil. *Id.* Exemplary dielectric materials may include polyester (PET). *Id.* Figure 3A shows conductive layer 302 extending to the edges of dielectric layers 300, 304. *See id.* at 7:49–51.

D. Illustrative Claim

Of the challenged claims, claims 1 and 18 are independent. Claim 1 recites a cable and claim 18 recites a method of manufacturing a cable. *See* Ex. 1001, 11:26–39, 12:28–41. Claim 1 is reproduced below.

1. A cable, comprising:

[1A] a first twisted pair of insulated conductors;

[1B] a second twisted pair of insulated conductors;

[1C] a filler separating the first twisted pair of insulated conductors from the second twisted pair of insulated conductors;
and

[1D] a multi-layer conductive barrier tape comprising a continuous conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material, the barrier tape surrounding the first twisted pair of insulated conductors, the second twisted pair of insulated conductors, and the filler.

Id. at 11:26–39 (bracketed designations added by Petitioner).

E. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–3, 9–14, and 16–18 would have been unpatentable on the following grounds:

Ground ¹	Claim(s) Challenged	35 U.S.C. § ²	Reference(s)
1	1–3, 9–14, 16–18	102	Cook ³
2	11	103	Cook, Glew ⁴
3	1–3, 9–14, 16–18	102	Glew
4	1–3, 9–14, 16–18	103	Glew, Cook

¹ To the extent that Petitioner’s Grounds differ between the “Identification of Challenge” (Pet. 1) and the discussion presented in the Petition, we rely on Petitioner’s discussion (*see id.* at 71–81 (Grounds 7–9), 97 (Ground 11)). We caution Petitioner that imprecisely referring to multiple Grounds or references may lead to a lack of particularity due to voluminous and excessive grounds. *See Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20 (PTAB March 6, 2019) (informative).

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’030 patent has an effective filing date after the effective date of the applicable AIA amendments, we refer to the AIA versions of §§ 102 and 103.

³ US 9,363,935 B1, issued June 7, 2016 (Ex. 1010).

⁴ US 2013/0248240 A1, published September 26, 2013 (Ex. 1008).

Ground ¹	Claim(s) Challenged	35 U.S.C. § ²	Reference(s)
5	1–3, 9–11, 13, 16–18	102	Roberts ⁵
6	1–3, 9–11, 13, 16–18	103	Roberts, Jachimowicz-172 ⁶
7	1–3, 9–11, 13, 16–18	103	Roberts, Jachimowicz-036 ⁷
8	11	103	Roberts, Glew, and/or Jachimowicz-172 or Jachimowicz-036
9	12, 16	103	Roberts, Glew, Simons, ⁸ and/or Jachimowicz-172 or Jachimowicz-036
10	1–3, 9–14, 16–18	103	Clark-478, ⁹ Roberts, Glew
11	3, 9	103	Glew, Roberts, Cook, and/or Jachimowicz- 172 or Jachimowicz- 036

In support of its unpatentability arguments, Petitioner relies on the declaration of Kenneth Cornelison. Ex. 1006. Patent Owner relies on the declaration of Dr. Charles A. Eldering. Ex. 2001.

II. ANALYSIS

A. Claim Construction

We apply the claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). *See also* 37 C.F.R. § 42.100(b) (explaining that “the same claim construction standard that would be used to construe a claim in a civil action under 35 U.S.C. 282(b)” is used in an inter

⁵ US 3,622,683, issued November 23, 1971 (Ex. 1009).

⁶ US 3,894,172, issued July 8, 1975 (Ex. 1014).

⁷ US 3,233,036, issued February 1, 1966 (Ex. 1013).

⁸ US 3,911,200, issued October 7, 1975 (Ex. 1012).

⁹ US 2006/0169478 A1, published August 3, 2006 (Ex. 1025).

partes review). Under *Phillips*, claim terms are afforded “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. The “ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313. Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *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 do not argue for any express claim construction. Petitioner argues that it “presently believes the plain meaning is enough to resolve this petition.” Pet. 14. Patent Owner’s Preliminary Response has no separate section addressing claim construction. *See* Prelim. Resp., *passim*.

The parties, however, dispute the meaning of the term “lateral edge” of the two layers of the dielectric material, as recited by the independent claims. *See* Pet. 36–37; Prelim. Resp. 19–26. We discuss “lateral edge” below in the context of the parties’ arguments regarding patentability. *Infra* § II.E.4. The parties may propose and support constructions of the term “lateral edge” during trial. On the present record, we determine we need not expressly construe any claim term at this stage of the proceeding. *See Realtime Data*, 912 F.3d at 1375.

B. Level of Ordinary Skill in the Art

Petitioner asserts that “a person of ordinary skill in the art (POSITA) would have had a bachelor’s degree in electrical engineering and a minimum of 3-4 years of industry experience in connection with designing,

manufacturing, and testing of twisted-pair data cables,” and an “individual with a master’s degree in electrical engineering would require less industry experience (e.g., 1-2 years).” Pet. 15 (citing Ex. 1006 ¶ 12). Patent Owner’s declarant asserts that one of ordinary skill in the art “would have had at least a bachelor’s degree in electrical engineering and a minimum of 3-4 years of industry experience in the telecommunications industry,” and does not agree industry experience specifically with respect to twisted-pair data cables would be necessary to qualify as having ordinary skill in the art. Ex. 2001 ¶ 26 (cited at Prelim. Resp. 22 n.6). Patent Owner states, however, that any differences between the parties’ proposed definitions “are insubstantial and do not impact the analysis of the issues presented.” Prelim. Resp. 22 n.6.

For the purposes of this Decision, we adopt Petitioner’s proposal, because we find Petitioner’s statement of the level of ordinary skill in the art adequate and supported on this record. The level of ordinary skill in the art also appears to be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Principles of Law

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). A “prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsisimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on underlying factual determinations including: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) when presented, objective evidence of nonobviousness, i.e., secondary considerations.¹⁰ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). A petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements,” but “must

¹⁰ At this stage, Patent Owner does not present any objective evidence of nonobviousness (i.e., secondary considerations).

instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the “interrelated teachings of multiple patents”; “any need or problem known in the field of endeavor at the time of invention and addressed by the patent”; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (quoting *KSR*, 550 U.S. at 418–21).

D. Cook-based Grounds (Grounds 1 and 2)

Petitioner argues that Cook anticipates claims 1–3, 9–14, and 16–18. Pet. 17–31 (Ground 1). Petitioner also asserts that dependent claim 11 would have been obvious over Cook and Glew (Ground 2). *Id.* at 31–33.

1. Cook (Ex. 1010)

Cook is a U.S. patent titled “Subdivided Separation Fillers for Use in Cables.” Ex. 1010, code (54). Cook discloses cables including separators with discrete sections disposed between twisted pairs. *Id.* at code (57).

Figure 1 of Cook is reproduced below.

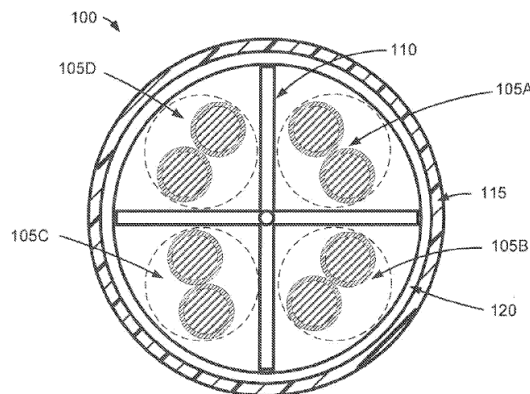


FIG. 1

Figure 1 illustrates a cross-section of cable 100. *Id.* at 4:32–34. Cable 100 includes separator 110 having a cross shape with four arms extending from a central point. *Id.* at 4:55–59, 11:40–51. Cable 100 further includes four twisted pairs 105A–105D, each twisted pair located between two arms of separator 110. *Id.* at 4:41–44, 4:55–59. Separator 110 and twisted pairs 105A–105D are surrounded by shield layer 120. *Id.* at 5:46–48. Shield layer 120 is surrounded by jacket 115. *Id.* at 4:55–59, 5:43–46.

Cook describes an embodiment of shield layer 120 as “a relatively continuous shield [] formed from electrically conductive material such as a metallic foil (e.g., a copper foil, an aluminum foil . . .).” *Id.* at 6:50–54. The electrically conductive material “whether continuous or comprising electrically conductive patches or sections, can be disposed on a substrate or dielectric material.” *Id.* at 7:10–15. Cook further describes the electrically conductive material as disposed on a dielectric tape or “sandwiched between multiple dielectric layers in order to form a shield.” *Id.* at 7:15–20.

Figure 8D of Cook is reproduced below.

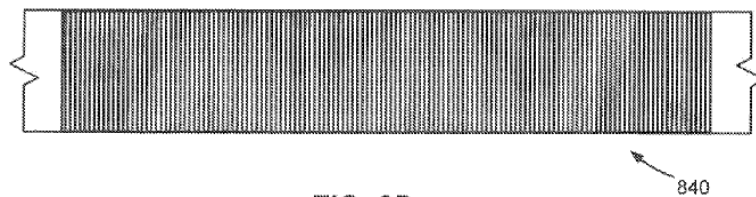


Figure 8D illustrates a top level view of a shield layer that includes “a relatively continuous patch of electrically conductive material running along a longitudinal length” of separator 840. *Id.* at 23:58–62. “With a shield layer, a relatively continuous shield may be performed and, as desired, the electrically conductive material may be grounded at either end when a cable incorporating the shield layer is installed.” *Id.* at 23:64–67.

2. Petitioner's Arguments

Petitioner, referring to its bracketed claim 1 and claim 18 annotations, argues that Cook discloses cable 100 including [1A] (and [18A]) a first twisted pair of insulated conductors (105A), [1B] (and [18A]) a second twisted pair of insulated conductors (105B), and [1C] (and [18B]) a filler (separator 110) separating the first and second twisted pairs. Pet. 17 (citing Ex. 1010, 4:32–47, 4:55–59, 5:63–6:22, 15:57–63, Figs. 1, 2; Ex. 1006 ¶¶ 79–80). Petitioner argues that Cook also discloses [1D] (and [18C-1] and [18C-2]) a multilayer barrier tape (tape shield 120) surrounding the first and second twisted pair of insulated conductors and the filler. *Id.* at 18 (citing Ex. 1010, 5:46–48, 6:35–41, Figs. 1, 2; Ex. 1006 ¶ 81). Petitioner labels these elements in its annotated Figure 1 of Cook, reproduced below.

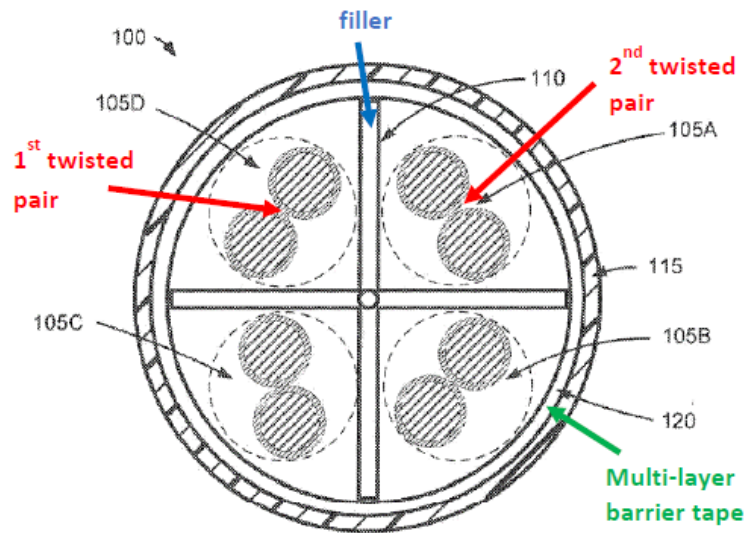
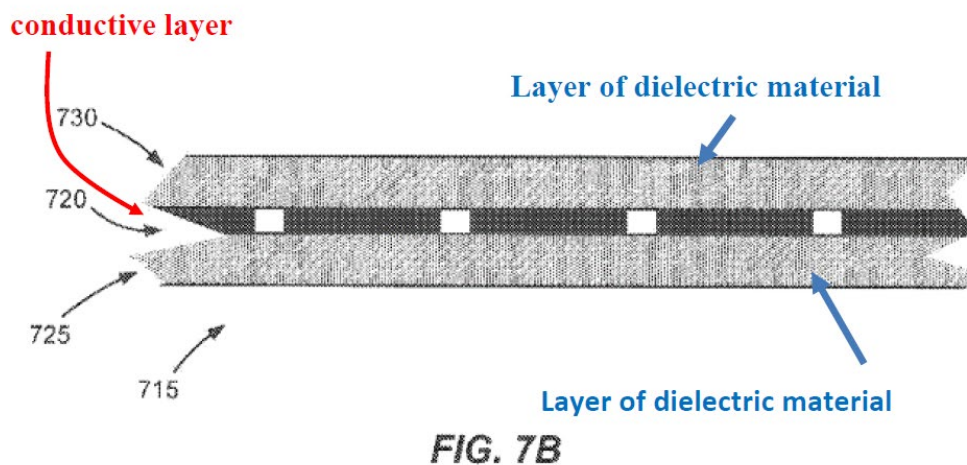


FIG. 1

Id. Petitioner's annotated Figure 1 labels first and second twisted pairs 105A and 105D in red, filler 110 in blue, and multi-layer barrier tape 120 in green. *Id.*

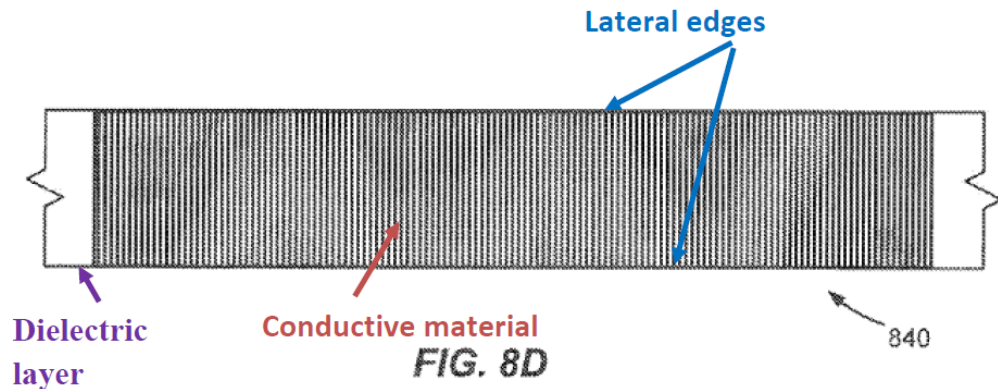
Petitioner argues that “Cook’s ‘shield 120’ may be a ‘tape’ (or ‘tape shield’) that comprises a ‘continuous’ electrically conductive material . . . that is ‘sandwiched between multiple [(e.g., two)] dielectric layers,’ or, as an alternative, comprises ‘discontinuous’ separated patches or sections of electrically conductive material ‘sandwiched between’ dielectric layers.” *Id.* at 19 (citing Ex. 1010, 6:50–7:20, 11:8–39, 11:64–12:5, 22:30–41, Figs. 7B, 8A–8D; Ex. 1006 ¶ 83.

Petitioner argues that, in one example, Cook’s Figure 7B illustrates a discontinuous conductive layer sandwiched between two dielectric layers. *Id.* at 19 (citing Ex. 1010, 22:39–41, Fig. 7B (annotated); Ex. 1006 ¶ 82). Petitioner’s annotated Figure 7B is reproduced below.



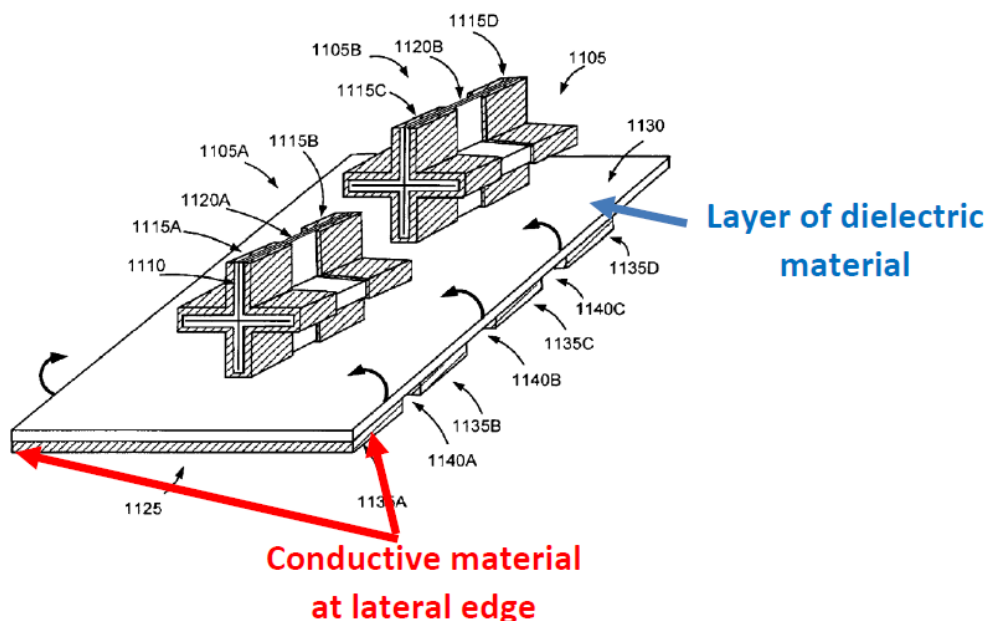
Petitioner’s annotated Figure 7B of Cook labels discontinuous conductive layer 720 in red and dielectric layers 725, 730 in blue. *Id.*

Petitioner argues that, in another example, Cook’s Figure 8D illustrates “the conductive material *extending to each lateral edge of the two layers of dielectric material.*” *Id.* at 20 (citing Ex. 1010, 12:22–23, 23:58–67, Fig. 8D; Ex. 1006 ¶ 84). Petitioner’s annotated Figure 8D is reproduced below.



Petitioner’s annotated Figure 8D of Cook labels lateral edges in blue, conductive material in red, and dielectric layer in purple. *Id.*

Petitioner argues that in another example, Cook’s Figure 11 illustrates a shield layer (two-layer barrier tape) with a discontinuous conductive material “extending to each lateral edge of the dielectric layer.” *Id.* at 20–21 (citing Ex. 1010, 25:39–57, Fig. 11). Petitioner’s annotated Figure 11 is reproduced below.



Petitioner’s annotated Figure 11 labels “Layer of dielectric material” in blue and “Conductive material at lateral edge” in red. Petitioner asserts that

although “this embodiment shows discontinuous patches (as opposed to the alternative ‘continuous’ design), continuous conductive material would similarly extend to the lateral edges.” *Id.* at 21 (citing Ex. 1006 ¶¶ 84–86). Petitioner presents further arguments directed to dependent claims 2, 3, 9–14, 16, and 17, explaining where Petitioner believes the additional limitations of those claims are found in Cook. *Id.* at 22–30 (citing Ex. 1006 ¶¶ 90–110). Petitioner argues that independent claim 18 “recites essentially the same structural limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Cook’s cable and teaching described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 anticipated for the same reasons discussed above.” *Id.* at 30–31.

3. *Patent Owner’s Argument*

Patent Owner contends that Petitioner relies on “***two different embodiments*** in Cook (*i.e.*, shown in FIGS. 8D and 11),” neither of which “disclose a conductive barrier tape comprising a conductive material contained between two layers of a dielectric material” as required by independent claims 1 ([1D]) and 18 (18C-1). Prelim. Resp. 12–13 (citing Ex. 2001 ¶ 35). Patent Owner argues that Cook’s Figure 8D illustrates an embodiment with a single layer of conductive material that is not contained between two layers of dielectric material. *Id.* at 13 (citing Ex. 2001 ¶¶ 37–38). Patent Owner also argues that Cook’s Figure 11 illustrates an embodiment with discontinuous conductive patches on a single dielectric layer, such that the conductive material is not contained between two layers of a dielectric material. *Id.* at 13–14 (citing Ex. 2001 ¶¶ 40–41). Patent Owner further argues that Cook’s Figure 7B illustrates an embodiment with

a discontinuous electrically conductive layer. *Id.* at 17 (citing Ex. 2001 ¶ 52). Patent Owner concludes that “Petitioner’s blatant picking and choosing of different features from different embodiments without any explanation regarding how or why the features would be combined cannot support its proposed anticipation Ground 1.” *Id.* at 18 (citing Ex. 2001 ¶ 54).

4. *Analysis*

On this record, Petitioner has not established a reasonable likelihood of prevailing on its assertions of anticipation by Cook. Petitioner relies on a number of disparate embodiments discussed in Cook, without adequate explanation whether they are depictions of the same embodiment, or, if they are not the same embodiment, why we should accept them as such under an anticipation standard.

The “dispositive question regarding anticipation” is “whether one skilled in the art would reasonably understand or infer from the [reference’s] teaching” that it discloses every claim element arranged as in the claim. *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991); *see Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003). An anticipatory reference “must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN*, 545 F.3d at 1369. For anticipation, a reference must “clearly and unequivocally” disclose the claimed invention or direct one of ordinary skill in the art to the invention “without *any* need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.” *In re Arkley*, 455 F.2d 586, 587–588 (CCPA 1972). Although anticipation may

rest on teachings from different embodiments within a single reference, particularly where the reference contemplates combining teachings from separate embodiments, *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376 (Fed. Cir. 2015), Petitioner has not adequately on this record directed us to any portions of Cook that indicate that Cook’s various embodiments are intended to be combined or interpreted in the manner proposed by Petitioner. Accordingly, Petitioner has not shown that Cook discloses the “continuous” limitation of claim element [1D] or the “lateral edge” limitations of claim elements [1D] or [18C-2] “arranged as in the claim.”

Petitioner’s Ground 2, asserting that dependent claim 11 would have been obvious over Cook and Glew, relies on the same elements of Cook discussed in Petitioner’s Ground 1 anticipation case, discussed above. Pet. 31–33; *see also* Prelim. Resp. 18 n.2 (“Since Ground 2 only focused on the additional claim element(s) added in claim 11 and did not even attempt to remedy Cook’s failure to disclose the missing elements of independent claims 1 and 18, it should also be rejected.” (citing Ex. 2001 ¶55)). Because Petitioner’s Ground 2 arguments do not account for the shortcomings in Petitioner’s Ground 1 arguments, on the present record, Petitioner has not established a reasonable likelihood of prevailing on its assertions of obviousness of claim 11 over Cook and Glew.

E. Asserted Anticipation by Glew (Ground 3)

Petitioner argues that Glew anticipates claims 1–3, 9–14, and 16–18. Pet. 33–48.

1. *Glew (Ex. 1008)*

Glew is a U.S. published patent application titled, “Compositions, Methods, and Devices Providing Shielding in Communications Cables.” Ex. 1008, code (54). Glew discloses a separator for a communications cable. *Id.* at code (57).

Glew Figure 10A is reproduced below.

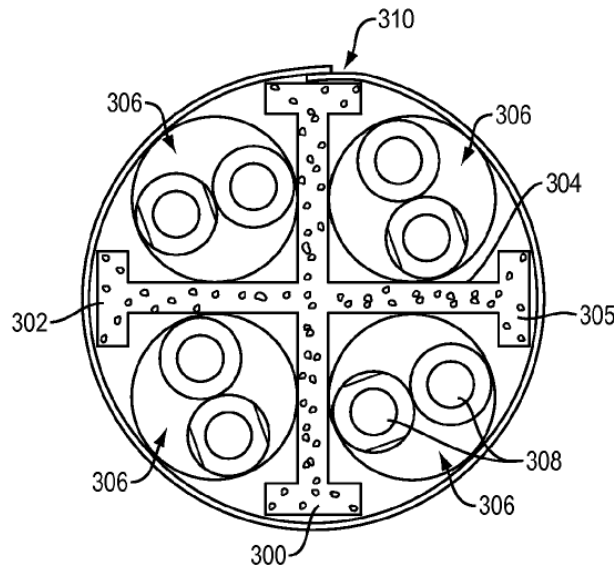


FIG. 10A

Figure 10A depicts a cross-sectional end view of a separator. *Id.* ¶ 67. The interior of the cable includes separator 300 made up of body portion 302 having arms 304 that extend outward to t-shaped flap portions 305. *Id.* ¶ 154. The spaces between flap portions 305 form channels 306 that contain twisted pair conductors 308. *Id.* ¶¶ 143, 154. Shielding material 310 surrounds separator 300. *Id.* Shielding material 310 can be an aluminum mylar film or a multi-layer tape material, as shown in Figures 13A–13D. *Id.* Glew Figure 13C is reproduced below.

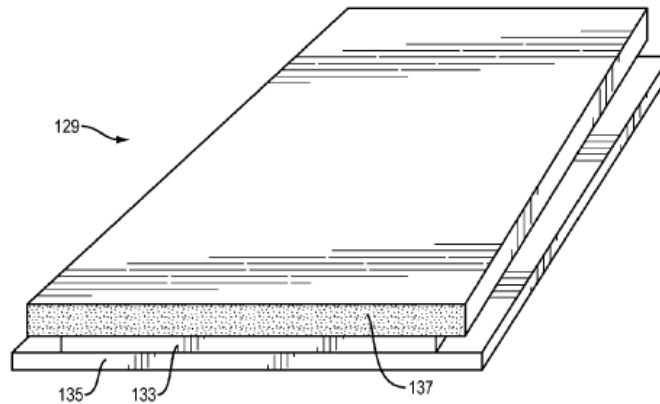


FIG. 13C

Figure 13C depicts a multi-layer tape including a polymeric substrate, a metallic layer, and a non-woven fabric layer. *Id.* ¶ 78. Figure 13C illustrates a perspective view of multi-layered tape 129 including thin metallic layer 133 (e.g., an aluminum foil layer) disposed between polymeric substrate 135 and polymeric non-woven fabric layer 137. *Id.* ¶ 195.

2. *Petitioner's Arguments*

Petitioner, referring to its bracketed claim 1 and claim 18 annotations, argues that Glew discloses a cable with [1A] (and [18A]) a first twisted pair of insulated conductors 306, [1B] (and [18A]) a second twisted pair of insulated conductors 306, and [1C] (and [18B]) a filler (separator 300). Pet. 33–34 (citing Ex. 1008 ¶¶ 30, 143, 146, 154–155, Figs. 10A, 10B; Ex. 1006 ¶¶ 129–131). Petitioner argues that Glew also teaches [1D] (and [18C-1] and [18C-2]), a multi-layer conductive barrier tape (shielding material 310) surrounding the first and second twisted pair of insulated conductors and the filler. *Id.* at 33–34 (citing Ex. 1008 ¶¶ 154, 197; Fig. 10A; Ex. 1006 ¶¶ 132–134). Petitioner labels these elements in annotated Glew Figure 10A, reproduced below.

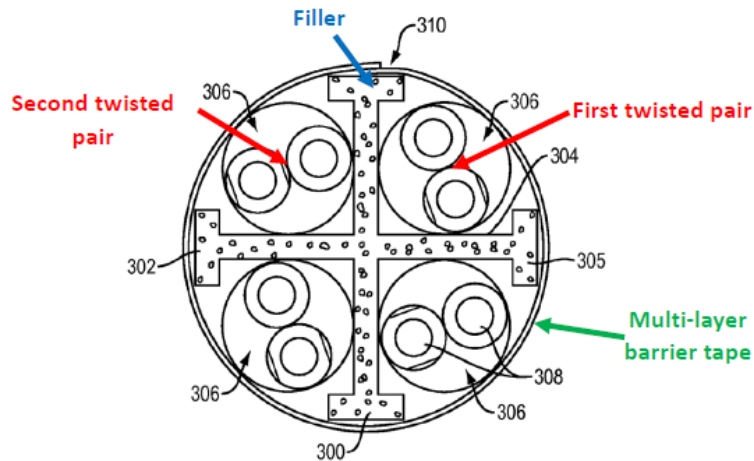
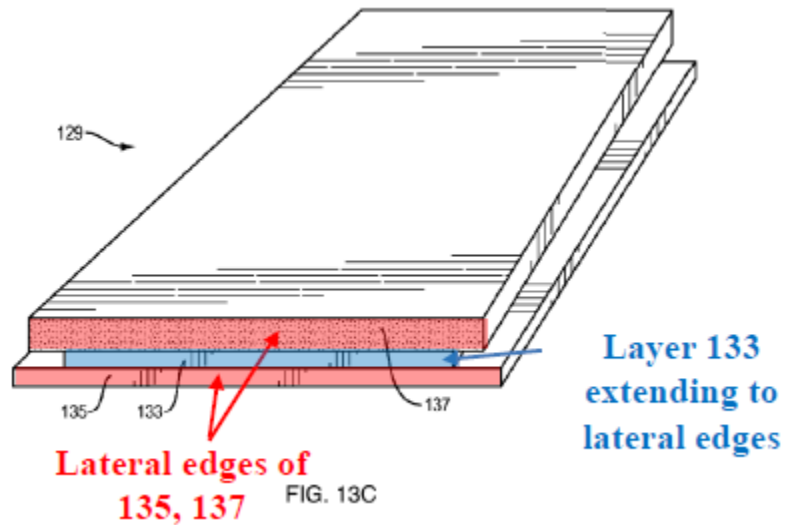


FIG. 10A

Petitioner’s annotated Figure 10A labels first and second twisted pairs 306 in red, filler 300 in blue, and multi-layer barrier tape 310 in green. *Id.*

Petitioner argues that “Glew discloses that the shielding material ‘can be a multi-layer tape material’” having “‘a thin metallic layer 133’” disposed between an underlying polymeric substrate and a non-woven fabric layer. *Id.* at 34–35 (citing Ex. 1006 ¶ 134; Ex. 1008 ¶¶ 154, 158, 195). Petitioner contends that “Glew also discloses that the metallic layer 133 in the three-layer tape of FIG. 13C is ‘continuous’” and extends “to each lateral edge of the two layers of dielectric material.” *See id.* at 36–37 (citing Ex. 1008 ¶ 195; Ex. 1006 ¶¶ 135–136). Petitioner labels these elements in annotated Glew Figure 13C, reproduced below.



Petitioner’s annotated Figure 13C shows metallic layer 133 with its proximal edge colored blue and dielectric layers 135, 137 with their proximal edges colored red. *See id.* at 37. Petitioner asserts that “the metallic layer 133 extends to the front edges of dielectric layers 135 and 137, which can be considered ‘lateral edges’ of these two dielectric layers in that they extend laterally (as compared to extending along the longitudinal axis).” *Id.* at 36–37 (citing Ex. 1008 ¶ 195). Petitioner further asserts that a “POSITA would understand that when a three-layer tape, such as shown in FIG. 13C, is manufactured for use in a cable, the three layers would be aligned along the side edges.” *Id.* at 38 (citing Ex. 1006 ¶¶ 137–138). Petitioner argues that a typical tape manufacturing process would result in the three layers aligned along the side edges, as opposed to the three offset layers illustrated in Figure 13C, which “would involve custom-making individual tapes for individual cable sizes.” *Id.* (citing Ex. 1006 ¶ 138).

Petitioner presents further arguments directed to dependent claims 2, 3, 9–14, 16, and 17, explaining where Petitioner believes the additional limitations of those claims are found in Glew. *Id.* at 38–48 (citing Ex. 1006 ¶¶ 141–164). Petitioner argues that independent claim 18 “recites

essentially the same limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Glew’s cable and teaching described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 anticipated for the same reasons discussed above.” *Id.* at 48.

3. *Patent Owner’s Arguments*

Patent Owner argues that Glew does not disclose a conductive layer extending to the lateral edges of the two dielectric layers. *See* Prelim. Resp. 18–29. Patent Owner argues that the term “lateral edges” refers to the edges running along the sides of the dielectric layers parallel to (or in) the longitudinal direction. *Id.* at 19–20, 23, 25. Patent Owner argues that Glew’s Figure 13C shows the “front edges” of tape 129 that are the ends of the tape, and not the lateral edges. *Id.* at 25–26 (citing Ex. 2001 ¶ 67). According to Patent Owner, “[a]pplying the proper construction of ‘lateral edge,’ as understood by a POSITA, Glew’s metallic foil layer 133 does not extend to the lateral edges of the dielectric layers 135, 137.” *Id.* at 26 (citing Ex. 2001 ¶¶ 68–69).

Patent Owner further argues that Petitioner relies “on [Petitioner’s] expert’s speculative testimony” to show that one of ordinary skill in the art would understand that the three layers would be aligned along the side edges. *Id.* at 27 (citing Pet. 38). Patent Owner asserts that “Petitioner admitted that some tapes are actually made with layers having different widths . . . as shown in every tape in FIGS. 13A–13D in Glew.” *Id.* at 28 (citing Ex. 2001 ¶ 72). Patent Owner concludes that because “Glew does not disclose a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, it cannot anticipate

independent claims 1 and 18 or any of the dependent claims.” *Id.* at 29 (citing Ex. 2001 ¶ 73).

4. *Analysis*

On this record, we agree that Petitioner has not established a reasonable likelihood of prevailing on its assertions of anticipation by Glew. Petitioner argues that “the ’030 patent does not identify or define what is meant by ‘lateral edge.’” Pet. 36–37. For the purposes of this Ground 3, Petitioner argues that lateral edges may include the “front” and “back” edges of the dielectric material, “in that they extend laterally (as compared to extending along the longitudinal axis)” as shown in Petitioner’s annotated Figure 13C of Glew. *Id.* at 37. However, Petitioner argues in Grounds 1 and 4 that the lateral edges may be along the sides of the dielectric material, as shown in Petitioner’s annotated Figures 8D and 11 of Cook (Ground 1) and annotated Figure 13C of Glew (Ground 4). *Id.* at 20–21, 49.

Patent Owner contends that “lateral edge,” as understood by a person of ordinary skill in the art, does not include the front or back edges, but rather refers to the edges of the claimed barrier tape “running along the sides of the tape parallel to (or in) the longitudinal direction.” Prelim. Resp. 19–20, 26. Patent Owner argues that this construction is supported by the Specification (citing Ex. 1001, 7:64–8:25, 8:38–46; Figures 3B–3E, Ex. 2001 ¶¶ 58–61) and the art cited by Petitioner (citing Ex. 1010, 23:58–67; Ex. 1009, 2:20–24, 2:42–46, 4:27–33, 4:34–40, 5:65–75, Figs. 2, 3, 10; Ex. 2001 ¶¶ 62–65). *Id.* at 19–24.

On the present record, and for the purposes of preliminarily discussing the term “lateral edge” in the context of the parties’ Ground 3 arguments, we understand “lateral edge” as referring to the edges of the claimed barrier tape

“running along the sides of the tape parallel to (or in) the longitudinal direction,” and as not including the front or back edges. Prelim. Resp. 26. Patent Owner provides reasonable support for this interpretation in the ’030 patent Specification and other references. *Id.* at 19–24. We note again that in Ground 3, Petitioner argues that lateral edges may include the “front” and “back” edges of the dielectric material, “in that they extend laterally (as compared to extending along the longitudinal axis)” as shown in Petitioner’s annotated Figure 13C of Glew (Pet. 36–37), but argues in Grounds 1 and 4 that the lateral edges may be along the sides of the dielectric material, as shown in Petitioner’s annotated Figures 8D and 11 of Cook (Ground 1) and annotated Figure 13C of Glew (Ground 4). Pet. 20–21, 49. Petitioner’s inconsistent position on the interpretation of the “lateral edge” term among its Grounds 1, 3, and 4 arguments undermines its position as to the interpretation of the term, and undermines its position that Glew discloses this limitation under an anticipation standard. Accordingly, we are unpersuaded that Petitioner has met its burden of demonstrating a reasonable likelihood of prevailing on its Glew-based anticipation arguments.

F. Asserted Obviousness over Glew and Cook (Ground 4)

Petitioner argues that claims 1–3, 9–14, and 16–18 would have been obvious over the combination of Glew and Cook. Pet. 49–54.

1. Petitioner’s Arguments

Petitioner argues that even if Glew does not disclose a barrier tape with a continuous conductive material extending to each lateral edge of the two layers of dielectric material, “it would have been obvious to a POSITA at the time of the ’030 invention to modify Glew’s barrier tape to have the conductive material so extend in a finished cable.” Pet. 49 (citing Ex. 1006

¶¶ 174–178). Petitioner argues that the modification “would have been obvious in view of Glew alone” (Pet. 49–51) or “obvious in view of Cook” (*id.* at 51–54). Accordingly, although Petitioner treats this Ground 4 as one ground, we analyze this ground below as “obviousness in view of Glew alone” and “obviousness in view of Glew and Cook.”

As to “obviousness in view of Glew alone,” Petitioner asserts that at the time of the ’030 patent filing date the common method of making multi-layer tapes, such as disclosed in Glew, was to feed large sheets or films of the multi-layer material into a slitter, which then slits the sheet into smaller-sized tapes. This process results in all three layers having side edges flush with each other.

Id. at 50 (citing Ex. 1037, Figs. 3A, 3B, 4B; Ex. 1038, Fig. 3; Ex. 1006

¶¶ 175–176). Petitioner argues that “Glew does not suggest that having non-aligned edges is advantageous or important” and instead discloses manufacturing steps “applicable to the tape layers whether the edges are aligned or not.” *Id.* at 50–51 (citing Ex. 1008 ¶¶ 7, 101, 197, 199–200, 217). Accordingly, argues Petitioner, a “POSITA would find it obvious to make the three layers of the multi-layer tape flush with each other (i.e., have the metal layer extend to the side edges of the dielectric layers in FIG. 13C)” because doing so “would provide the benefits of Glew’s disclosed tape and doing so also would be simpler and cheaper to manufacture.” *Id.* at 51 (citing Ex. 1006 ¶¶ 177–181).

As to “obviousness in view of Glew and Cook,” Petitioner argues that Cook “demonstrates that it is well-known for multi-layer tapes to have the metal layer side edges flush/aligned with the dielectric layer edges.” *Id.* at 52–53 (citing Ex. 1008, 7:1–15, 12:22–23, Figs. 7C, 8A–8D; Ex. 1006 ¶¶ 182–184). Petitioner asserts that “modifying Glew’s three-layer tape to extend to the longer, longitudinally extending edges of the dielectric material

(assuming it is not already disclosed) is the combination of familiar elements according to known methods to yield predictable results.” *Id.* at 53 (citing Ex. 1006 ¶¶ 184–187). Additionally, Petitioner asserts that one of ordinary skill in the art would have had “a reasonable expectation that using the Glew tape modified to have the metal layer extending to the lateral edges of the dielectric layers (as shown in Cook) would be successful.” *Id.* Moreover, Petitioner argues that a “POSITA would understand that it would be more cost-effective and simpler to manufacture such tapes with aligned edges than with the offset edges schematically illustrated in Glew.” *Id.* at 53–54 (citing Ex. 1006 ¶ 186).

2. *Patent Owner’s Argument*

Patent Owner argues that Petitioner “fails to establish that it ‘would’ have been obvious to” have made Glew’s multi-layer tape with flush edges. *See* Prelim. Resp. 38–39 (citing Ex. 2001 ¶¶ 86–87). Patent Owner further argues that there were known disadvantages to a conductive layer extending to the lateral edges of the dielectric layers. *See id.* at 40–44. For example, Patent Owner asserts that Roberts teaches that a shield, when made of an aluminum foil coated with plastic only on its two major surfaces, has exposed naked aluminum edges that create undesirable electrical properties. *Id.* at 40–41 (citing Ex. 1009, 4:68–5:15, 5:48–54, 6:15–28, Figs. 9, 10; Ex. 2001 ¶ 89). Patent Owner argues that Roberts instead teaches covering the conductive edges of the metal foil with plastic to completely surround the foil. *Id.* at 41 (citing Ex. 1009, 2:37–38, 2:47–53, 3:1–7, 6:29–65, 6:66–7:25, Figs. 8, 11, 12, 14, 16, 21; Ex. 2001 ¶ 90). Likewise, Patent Owner

argues that Kroushl¹¹ teaches “that there were known advantages to having the conductive layer be narrower than the dielectric layer(s) as disclosed in Glew.” *Id.* at 42–43. Specifically, Patent Owner argues that Kroushl teaches that having a polyester tape with a metallic layer running the length of the tape and metallic free segments on each side of the metal layer can help prevent unintentional shorting of adjacent metallic segments. *Id.* at 43 (citing Ex. 2007 ¶¶ 12, 14, 24, 28; Ex. 2001 ¶¶ 93–94).

As to the combination of Glew and Cook, Patent Owner argues that “Cook does not demonstrate that it is ‘well-known’ for multi-layer tapes to have the metal layer side edges flush/aligned with the dielectric layer edges” because Cook does not disclose a barrier tape with two layers of dielectric material. *Id.* at 46 (citing Ex. 2001 ¶¶ 34–55, 102).

3. *Analysis*

On this record, Petitioner establishes reasonable likelihood of prevailing on its arguments for obviousness over Glew alone, or over the combination of Cook and Glew. Petitioner asserts that a POSITA would have been motivated to have the metal layer side edges flush or aligned with the dielectric layer edges either on the Glew alone ground, or on the Glew and Cook ground, supporting its assertions with testimony from its declarant. Pet. 49–54 (citing Ex. 1006 ¶¶ 174–188). We have considered Patent Owner’s arguments and evidence to the contrary, and although Patent Owner raises a number of concerns with Petitioner’s proposed motivations and modifications, the question of whether it would have been obvious to

¹¹ U.S. Patent Application Publication No. 2016/0037691 A1, published February 4, 2016 (Ex. 2007).

modify Glew's metal layer so that it extends to the lateral edges is an issue best resolved on a full record.

G. Asserted Anticipation based on Roberts (Ground 5)

Petitioner argues that Roberts anticipates claims 1–3, 9–11, 13, and 16–18. Pet. 54–68.

1. *Roberts (Ex. 1009)*

Roberts is a U.S. patent titled “Telephone Cable with Improved Crosstalk Properties.” Ex. 1009, code (54). The telephone cable includes a plurality of insulated electrical conductors (pairs), divided into at least two portions by plastic-coated metal foil or tape to prevent unwanted energy transfer. *Id.* at code (57). Figure 17 of Roberts is reproduced below.

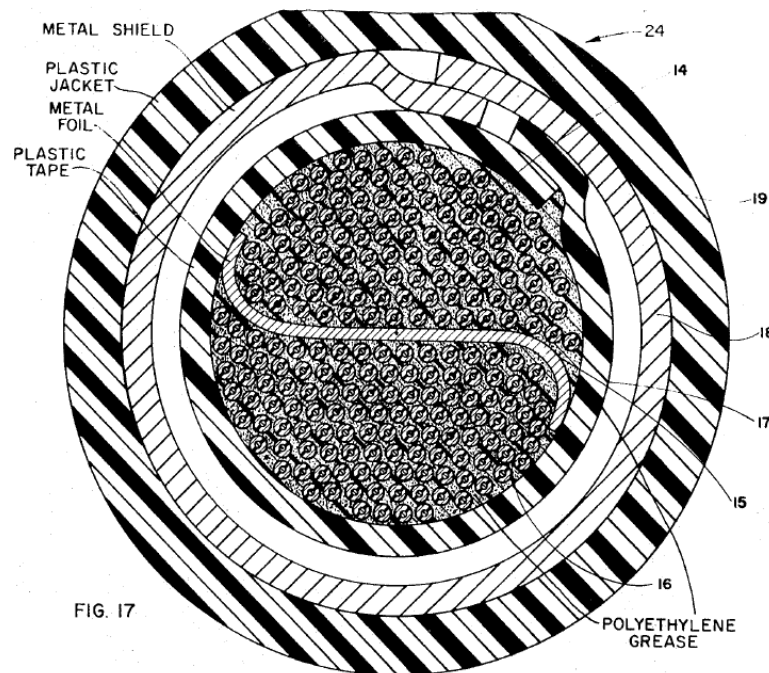


Figure 17 is a cross-sectional view of cable structure 24. *Id.* at 2:72–75. Cable structure 24 includes two groups of insulated electrical conductors 14, 16 divided by serpentine shaped shield 15. *Id.* at 10:42–62. Plastic tape 17 surrounds electrical conductors 14, 16 and shield 15. *Id.* Metal armor

shield 18 surrounds plastic tape 17. *Id.* Plastic jacket (outer cable sheath) 19 surrounds metal armor shield 18. *Id.*

Roberts describes metal armor 18 as “a tapelike strip that has been longitudinally folded or wrapped around the plastic tape (17). This particular piece of armor is in a sense an electrical . . . shield and it can have a plastic, such as polyethylene, firmly adhered to either one or more surfaces thereof.” *Id.* at 4:16–23.

Roberts further describes “particular metal foil tapes, both plastic coated and otherwise, used by the instant invention.” *Id.* at 4:48–51.

Figure 5, reproduced below, illustrates one embodiment of a metal foil tape.

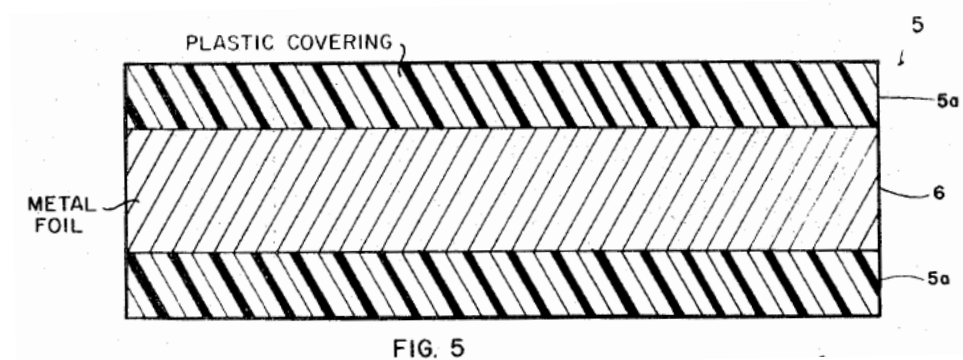
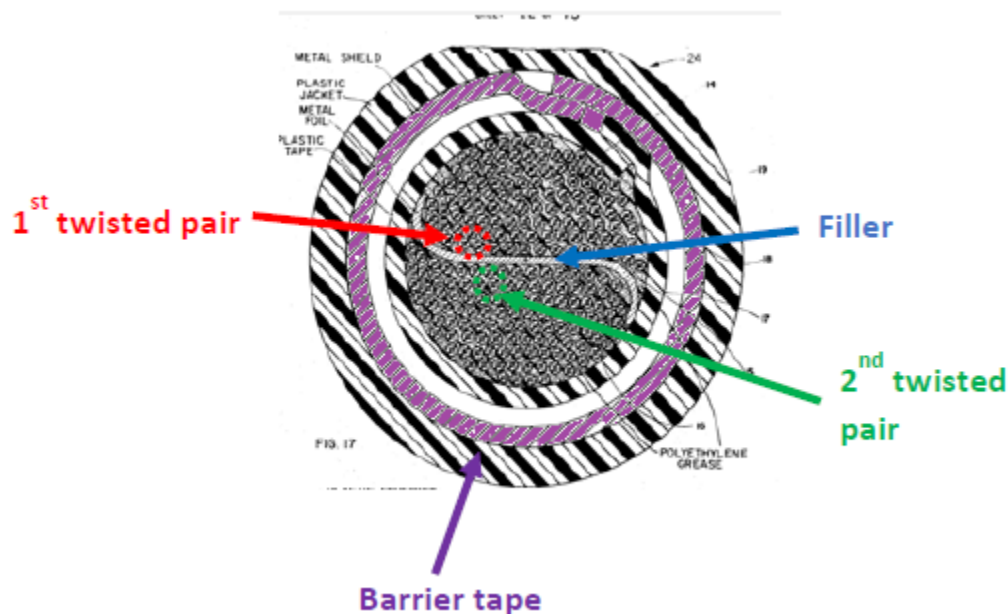


Figure 5 is a cross-sectional view of a metal foil coated on both sides with a plastic, used to shield one group of electrical conductors from another, and shows tape 5 including plastic layers 5a coating both sides of metal foil 6. *Id.* at 2:29–31, 4:52–54.

2. Petitioner's Arguments

Petitioner, referring to its bracketed claim 1 and claim 18 annotations, argues that Roberts discloses a cable including [1A] (and [18A]) a first twisted pair of insulated conductors (electrical conductors 14), [1B] (and [18A]) a second twisted pair of insulated conductors (electrical conductors 16), and [1C] (and [18B]) a filler (metal foil 15). Pet. 54–57

(citing Ex. 1009, Abstract, 3:21–31, 12:5–8, 12:12–14, 10:48–62, Figs. 23, 17; Ex. 1006 ¶¶ 181–191, 200). Petitioner further argues that Roberts discloses [1D] (and [18C-1] and [18C-2]) a barrier tape (metal armor 18) with a conductive layer between two dielectric layers. *Id.* at 57–58 (citing Ex. 1008, 4:15–23, 10:42–51, 12:30–36, Fig. 17; Ex. 1006 ¶¶ 203–207). Petitioner labels these elements in annotated Roberts Figure 17, reproduced below.



Petitioner annotates Roberts Figure 17 to label a first twisted pair in red, a second twisted pair in green, a filler in blue, and a barrier tape in purple. *See id.* at 58.

Petitioner argues that Roberts describes metal (armor) shield 18 as a “‘metal tape’ (or ‘metal armor tape’) that operates ‘as an electrical, as well as a mechanical, shield’ and that ‘can have a plastic, such as a polyethylene, firmly adhered to either one or more surfaces thereof.’” *Id.* at 58 (citing Ex. 1009, 4:15–23, 12:30–36). Petitioner asserts that this is “the same description as the metal foil shield 15 (*filler*), which Roberts says may be

‘coated on one side,’ or ‘coated on both sides with a plastic’,” as shown in Roberts Figure 5 and the ’030 Patent Figure 3A. *Id.* at 58–59 (citing Ex. 1009, 4:48–60, 10:52–62, Fig. 5; Ex. 1001, Fig. 3A; Ex. 1006 ¶¶ 203–207). According to Petitioner, “[i]n this disclosed three-layer tape, the metal layer is continuous and has lateral edges flush with the edges of the dielectric layers” and, thus, a “POSITA would conclude that the disclosed metal shield 18 (with dielectric on both surfaces) would look the same.” *Id.* at 59 (citing Ex. 1006 ¶¶ 203–207).

Petitioner presents further arguments directed to dependent claims 2, 3, 9–11, 13, 16, and 17, explaining where Petitioner believes the additional limitations of those claims are found in Roberts. *Id.* at 61–68 (citing Ex. 1006 ¶¶ 209–229). Petitioner argues that independent claim 18 “recites essentially the same limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Roberts’ cable and teaching described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 anticipated for the same reasons discussed above.” *Id.* at 68.

3. *Patent Owner’s Argument*

Patent Owner argues that Roberts does not disclose that metal shield 18 (also described in Roberts as “metal armor shield,” “metal armor tape,” or “armor”) includes a “conductive material contained between two layers of a dielectric material, where the conductive material extends to each lateral edge of the two layers of the dielectric material.” Prelim. Resp. 32–33. Patent Owner argues that Petitioner instead relies on metal foil shield 15 to disclose those features. *See id.* (citing Pet. 56–59). Patent Owner argues, however, that Roberts “expressly discloses that shield 15 is a thin *metal foil*

shield in all of the embodiments, including FIG. 17, and not a *metal armor shield* 18,” and “Roberts’ metal armor shield 18, which provides mechanical protection to the cable, is *not a metal foil* like shield 15.” *Id.* at 33 (citing Ex. 1009, 4:15–19, 4:62–67; Ex. 2001 ¶¶ 78–79).

Patent Owner asserts that Roberts further distinguishes between metal foil shield 15, which does not longitudinally circumscribe any group of conductors, and metal armor shield 18, which does circumscribe the electrical conductors. *Id.* at 33–34 (citing Ex. 1009, 2:72–75, 10:50–55, Fig. 17; Ex. 2001 ¶¶ 80–81). Patent Owner argues that “a POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18.” *Id.* at 34 (citing Ex. 2001 ¶¶ 80–81). Patent Owner asserts that “Roberts expressly touts the ‘obvious advantage’ of *not* having a metal foil shield circumscribing the electrical conductors ‘in that less shield material is used in this manufacture, without the loss of any of the desired electrical properties [mitigation of the near-end crosstalk problem].’” *Id.* at 34–35 (citing Ex. 1009, 11:7–12; Ex. 2001 ¶ 82). Patent Owner also argues that Petitioner’s reliance on evidence outside the four corners of Roberts (i.e., Exhibits 1013, 1014, 1031, 1037) “is not appropriate for its proposed Ground 5 anticipation challenge based on Roberts.” *Id.* at 35.

4. Analysis

On this record, we agree that Petitioner has not established a reasonable likelihood of prevailing on its assertions of anticipation by Roberts. Petitioner impermissibly relies on properties of shield 15, which provides primarily electrical shielding in a location within or between the twisted pairs of cables, to fill in the missing characteristics of shield 18, which serves a function of primarily mechanical shielding in a location

surrounding the twisted pairs of cables. *See Net MoneyIN*, 545 F.3d at 1371 (a reference must “clearly and unequivocally disclose” the claimed invention or direct those skilled in the art to the invention “without *any* need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference”). As noted by Patent Owner, Roberts does not disclose that metal armor shield 18 includes the claimed conductive material contained between two layers of a dielectric material, where the conductive material extends to each lateral edge of the two layers of the dielectric material, and Petitioner improperly relies on shield 15 to impute “a metal layer that is continuous and has lateral edges flush with the edges of the dielectric layers” to metal armor shield 18. Prelim. Resp. 32–33, 35. Petitioner does not, on this record, provide sufficient explanation and reasoning as to how or why the relied-upon properties of shield 15 may be imported into or construed as being the same as the properties of shield 18. Additionally, although Petitioner relies on additional references to support its arguments, and although this is not strictly impermissible in an anticipation case, we find that Petitioner’s reliance on additional references, on this record, does not support its case for anticipation based on Roberts. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1267 (Fed. Cir. 1991) (“When more than one reference is required to establish unpatentability of the claimed invention anticipation under § 102 can not be found, and validity is determined in terms of § 103.”).

*H. Asserted Obviousness over Roberts and Additional References
(Grounds 6–9, 11)*

1. Ground 6

In Ground 6, Petitioner argues that claims 1–3, 9–11, 13, and 16–18 would have been obvious over Roberts and Jachimowicz-172. Pet. 68–70. More particularly, Petitioner argues that if “Roberts is found to not disclose first and second twisted pairs of insulated conductors,” then “the use of twisted pairs of insulated conductors in Roberts’ cable would have been obvious for all the reasons explained in Ground 5, and further in view of Jachimowicz-172.” *Id.* at 68. In this ground, Petitioner relies on the same elements of Roberts discussed in Petitioner’s Ground 5 anticipation case based on Roberts and discussed above. Pet. 54–68. Patent Owner argues that Petitioner’s “alternative theory does not even attempt to address Roberts’ failure to disclose a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, and surrounding the first and second twisted pairs of insulated conductors and the filler.” Prelim. Resp. 48 (citing Ex. 2001 ¶ 105). Because Petitioner’s Ground 6 arguments do not account for the shortcomings in Petitioner’s Ground 5 arguments, Petitioner has not established a reasonable likelihood of prevailing on its assertions of obviousness of claims 1–3, 9–11, 13, and 16–18 over Roberts and Jachimowicz-172.

2. Ground 7

In Ground 7, Petitioner argues that claims 1–3, 9–11, 13, and 16–18 would have been obvious over Roberts and Jachimowicz-036. Pet. 71–74. More particularly, Petitioner argues that if “Roberts’ metal tape shield 18 does not disclose these claimed features [of a barrier tape], it would have been obvious to a POSITA to modify Roberts to include such a barrier tape.”

Id. at 71 (citing Ex. 1006 ¶¶ 249–250). Petitioner reasons that a “POSITA would be motivated by Roberts’ own disclosure to utilize, for the metal tape shield 18 (*barrier tape*), a conductive barrier tape that has the cross section of Roberts FIG. 5, which meets the elements of [1D] and [18C-1, 18C-2].” *Id.* at 72 (citing Ex. 1006 ¶¶ 249–253). Petitioner further reasons that a “POSITA would have been motivated to use tapes with such designs,” namely, the “conventional” and “well-known” three layer designs of Jachimowicz-036 and others, “particularly in view of Roberts’ disclosing use of a metal tape with plastic layers on one or more surfaces thereof,” because there “are only so many ways to shield with a metal tape having plastic on one or more of its surfaces.” *Id.* at 73–74 (citing Ex. 1006 ¶¶ 249–258).

Patent Owner argues, first, that a “POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18” due to, *inter alia*, the incompatibility of the structure of the metal foil shield and the structure and function of the metal armor shield. Prelim. Resp. 50–52 (citing Ex. 2001 ¶¶ 108–112). Patent Owner also faults Petitioner in that “neither Petitioner, nor its expert, ever explained **why or how** shield 14 disclosed in Jachimowicz-036 would be used ‘on Roberts’ cable.’” *Id.* at 53, 55 (citing Pet. 73, noting that Jachimowicz-036’s foil shield 14 “is also described as being a thin foil” rather than a shielding cable). Patent Owner also notes that Petitioner relies on a number of other references to support the proposed combination, but these references are not explained and are not part of the combination. *Id.* at 54 n.9.

On this record, Petitioner has established a reasonable likelihood of prevailing on its assertions of obviousness over Roberts alone, or Roberts

and Jachimowicz-036. Petitioner asserts that a POSITA would have been motivated to use Roberts's own disclosure to utilize, for metal tape shield 18, a conductive barrier tape with the cross section of Roberts Figure 5 (Pet. 72, citing Ex. 1006 ¶¶ 249–253), or would have been motivated to combine Roberts with Jachimowicz-036 to use the conventional cable of Jachimowicz-036, having all three lateral edge layers flush with each other, with a reasonable expectation of success (*id.* at 73–74, citing Ex. 1006 ¶¶ 249–258), supporting its assertions with testimony from its declarant. We have considered Patent Owner's arguments and evidence to the contrary, and although Patent Owner raises a number of concerns with Petitioner's proposed motivations and modifications, the question of whether it would have been obvious to modify Roberts's shield 18 to comprise a barrier tape with conductive material extending to each lateral edge of two layers of dielectric material is an issue best resolved on a full record. At this stage, Petitioner has established a reasonable likelihood of prevailing on its assertions of obviousness of claims 1–3, 9–11, 13, and 16–18 over Roberts alone, or Roberts and Jachimowicz-036.

3. *Grounds 8 and 9*

Petitioner's Ground 8 challenges claim 11 over Grounds 5–7 and Glew (Pet. 75–77), and Petitioner's Ground 9 challenges claims 12 and 16 over Grounds 5–8 and Simons (*id.* at 77–81). Patent Owner argues that because “these grounds only address the additional claim element(s) added in dependent claims 11, 12, and 16, and do not even attempt to remedy Roberts' failure to disclose the missing elements of independent claims 1 and 18, they should also be rejected.” Prelim. Resp. 36 n.8 (citing Ex. 2001 ¶ 84). Having reviewed the record, and having determined that at least as to

Ground 7, Petitioner’s arguments with respect to obviousness over Roberts alone or Roberts and Jachimowicz-036 establish a reasonable likelihood of prevailing on those claims, we are sufficiently persuaded that Petitioner’s Ground 8 and 9 arguments similarly establish a reasonable likelihood of prevailing on those contentions of obviousness. Pet. 75–77 (Ground 8, citing Ex. 1006 ¶¶ 259–266); *id.* at 77–81 (Ground 9, citing Ex. 1006 ¶¶ 267–276). The question of whether it would have been obvious to modify Roberts’s and/or Roberts and Jachimowicz’s combination to account for the seam positioning, cross-shaped filler arms, and channel formation of claims 11, 12, and 16, respectively, is an issue best resolved on a full record. At this time and on the present record, Petitioner has established a reasonable likelihood of prevailing on its assertions of obviousness of claims 11, 12, and 16.

4. *Ground 11*

In Ground 11, Petitioner argues that claims 3 and 9 would have been obvious in view of “any of Grounds 3–7 and one or more of Cook and/or the knowledge of a POSITA.” Pet. 97. Petitioner reasons that “it would be obvious to a POSITA to modify the Glew and Roberts cables to have the filler and conductors with the recited helical twist.” *Id.* (citing Ex. 1006 ¶¶ 338–339). Patent Owner argues: “Since Ground 11 only addresses the additional claim element(s) added in claims 3 and 9 and do not even attempt to remedy those prior art references’ failure to disclose the missing elements of independent claims 1 and 18, Ground 11 should also be rejected.” Prelim. Resp. 59 n.10 (citing Ex. 2001 ¶ 128). On the matter of this Ground 11, we determine that Petitioner is unlikely to succeed in prevailing on this expansive ground given the paucity of the argument presented. *See Adaptics*

Ltd., IPR2018-01596, Paper 20 (discussing failure to meet the particularity requirement of 35 U.S.C. § 312(a)(3)). The many possible combinations asserted in this ground are insufficiently explained or supported in the single page of minimally developed argument presented in the Petition, and we agree that on this record, Petitioner is unlikely to prevail on this ground.

I. Asserted Obviousness over Clark-478, Roberts, and Glew (Ground 10)

Petitioner argues that claims 1–3, 9–14, and 16–18 would have been obvious over the combination of Clark-478, Roberts, and Glew. Pet. 81–97.

1. *Clark-478 (Ex. 1025)*

Clark-478 is a U.S. patent application publication titled “Data Cable for Mechanically Dynamic Environments.” Ex. 1025, code (54). Clark discloses a multi-pair cable including a plurality of twisted pairs of insulated conductors and a separator disposed between the first and second twisted pairs. *Id.* at code (57). Figure 2 of Clark-478 is reproduced below.

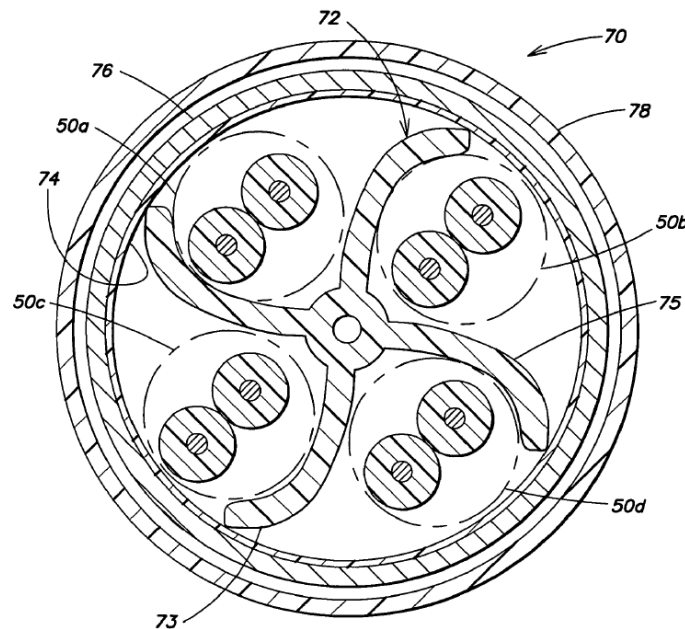


FIG. 2

Figure 2 depicts a multi-pair cable employing a separator, and illustrates a cross-section of cable 70 having a cross-shaped separator 72. *Id.* ¶¶ 22, 41. Separator 72 forms spaces for twisted pairs 50a–50d. *Id.* Binder 74 wraps around separator 72 and twisted pairs 50a–50d. *Id.* ¶ 47. Binder 74 may be an aluminum/mylar tape with the aluminum layer facing the twisted pairs, so that binder 74 and separator 72 provide four electrically shielded, enclosed channels. *Id.*

2. *Petitioner's Arguments*

Petitioner referring to its bracketed claim 1 and claim 18 annotations, argues that Clark-478 discloses a cable including [1A] (and [18A]) a first twisted pair of insulated conductors (50b), [1B] (and [18A]) a second twisted pair of insulated conductors (50a), and [1C] (and [18B]) a filler (separator 72). Pet. 81. Petitioner also argues that, during the prosecution of the '030 patent, the Examiner found that Clark-478 discloses all of the elements recited in claim element [1D] (and [18C-1] and [18C-2]), “except the barrier tape having three layers, with a conductive material contained between two layers of a dielectric material.” Pet. 82 (citing Ex. 1002, 7–8; Ex. 1006 ¶¶ 279–280; Ex. 1025 ¶¶ 41, 47, Fig. 2).

Petitioner's annotated Figure 2 of Clark-478 is reproduced below.

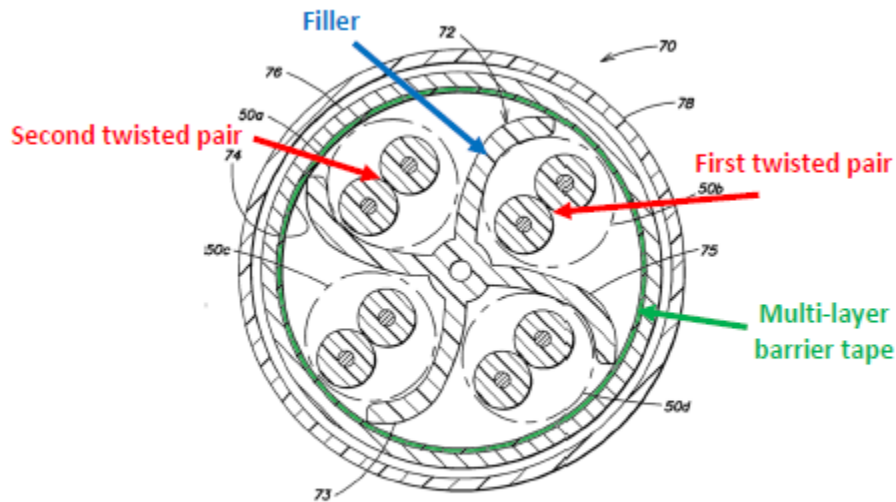


FIG. 2

Id. Petitioner annotates Clark-478 Figure 2 to label first and second twisted pairs in red, a filler in blue, and a barrier tape in green. *See id.*

Petitioner contends that “each of Roberts and Glew discloses the claimed three-layer barrier tape having the features recited in elements [1D], [18C-1] and [18C-2],” i.e., “a barrier tape with a continuous conductive material between two dielectric layers and extending to the lateral edges of those dielectric layers.” *Id.* at 83. Petitioner contends that one of ordinary skill in the art would have been motivated to combine Clark-478, Glew, and Roberts because “each discloses a multi-layer barrier tape formed of conductive and dielectric layers that surround twisted pairs in order to reduce crosstalk, and in particular alien crosstalk from other cables.” *Id.* at 84 (citing Ex. 1025 ¶¶ 48; Ex. 1008 ¶¶ 7, 30, 101, 165, 194, 197; Ex. 1009, 4:16–23; Ex. 1006 ¶¶ 289–291).

Petitioner presents arguments directed to dependent claims 2, 3, 9–14, 16, and 17, explaining where Petitioner believes the additional limitations of those claims are found in the proposed combination. *Id.* at 85–96 (citing

Ex. 1006 ¶¶ 293–326). Petitioner argues that independent claim 18 “recites essentially the same limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Clark-478’s cable along with the teachings of Roberts and Glew described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 obvious for the same reasons discussed above.” *Id.* at 96–97.

3. *Patent Owner’s Arguments*

Patent Owner repeats its previous arguments against Glew and Roberts. *See* Prelim. Resp. 56–59. Namely, Patent Owner argues that “Glew does not disclose a barrier tape with conductive material (133) extending to each lateral edge of the two layers of the dielectric material (135, 137),” and that “Roberts does not disclose a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, and surrounding the first and second twisted pairs of insulated conductors and the filler.” *Id.* at 56–57. Patent Owner further argues that “Petitioner’s alleged motivation for modifying Clark-478 teaches away from providing a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material.” *Id.* at 58. Specifically, Patent Owner argues that under Petitioner’s theory, “a POSITA would not want to extend the conductive material to each lateral edge of the two layers of the dielectric material since that would not isolate the metal layer of the shield from the conductors.” *Id.* (citing Ex. 2001 ¶ 126).

4. *Analysis*

As discussed above, we agree that Petitioner presents a reasonable argument that the three-layer tapes of Glew may disclose the missing

elements. Petitioner’s motivations to combine, on this record, reasonably demonstrate that “having the three-layer tape (instead of the two-layer tape in Clark-478) would provide a further benefit of having a dielectric layer between the conductors and the metal layer,” and would “mitigate the risk of high voltage failures and the risk of current transferring from the conductors to the metal layer of the shield while maintaining internal cross-talk isolation characteristics” and that doing so would yield a predictable result. Pet. 84–85 (citing Ex. 1006 ¶¶ 279–292).

We have considered Patent Owner’s arguments and evidence to the contrary, and although Patent Owner raises a number of concerns with Petitioner’s proposed motivations and modifications, the questions raised are best resolved on a full record at trial. Accordingly, Petitioner presents a reasonable likelihood of prevailing on its assertions that the challenged claims would have been obvious over Clark-478 and Glew.

III. CONCLUSION

For the reasons set forth above, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one challenged claim of the ’030 patent. Thus, we institute an *inter partes* review on all challenged claims and on all grounds presented.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that an *inter partes* review is instituted on each of the grounds asserted 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, which shall commence on the entry date of this decision.

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FOR PETITIONER:

Timothy A. Lindquist
Dennis C. Bremer
CARLSON CASPERS VANDENBURGH & LINDQUIST P.A.
tlindquist@carlsoncaspers.com
dbremer@carlsoncaspers.com

FOR PATENT OWNER:

Denis J. Sullivan
Thomas Hoehner
Pranav Katti
BARCLAY DAMON, LLP
dsullivan@barclaydamon.com
thoehner@barclaydamon.com

Cory C. Bell
FINNEGAN, HENDERSON, FARABOW,
GARRETT, & DUNNER LLP
cory.bell@finnegan.com