

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN INC.,
Patent Owner.

Case No. IPR2023-01056
Patent 9,991,030 B2

PATENT OWNER PRELIMINARY RESPONSE

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EXHIBIT LIST

EXHIBIT	DESCRIPTION
EX-1001	U.S. Patent No. 9,991,030 (“’030 Patent”)
EX-1002	Office Action dated 06/28/2019
EX-1003	Amendment and Response to Non-Final Office Action dated 10/3/2017
EX-1004	-
EX-1005	Scheduling Order, C.A. No. 22-783-RGA (D. Del.)
EX-1006	Expert Declaration of Kenneth Cornelison
EX-1007	<i>Curriculum Vitae</i> of Kenneth Cornelison
EX-1008	U.S. Patent Publication No. 2013/0248240 (“Glew”)
EX-1009	U.S. Patent No. 3,622,683 (“Roberts”)
EX-1010	U.S. Patent No. 9,363,935 (“Cook”)
EX-1011	U.S. Patent No. 7,335,837 (“Pfeiler”)
EX-1012	U.S. Patent No. 3,911,200 (“Simons”)
EX-1013	U.S. Patent No. 3,233,036 (“Jachimowicz-036”)
EX-1014	U.S. Patent No. 3,894,172 (“Jachimowicz-172”)
EX-1015	U.S. Patent No. 4,428,787 (“Pan”)
EX-1016	<i>Electronic Wire & Cable - A User’s Guide: Performance and Selection</i> , Section 5: Multiconductor Cables, AT&T (1987)
EX-1017	Whitham D. Reeve, <i>Subscriber Loop Signaling and Transmission Handbook – Digital</i> , IEEE Telecommunications Handbook Series (1995)
EX-1018	Whitham D. Reeve, <i>Subscriber Loop Signaling and Transmission Handbook – Analog</i> , IEEE Telecommunications Handbook Series (1992)
EX-1019	U.S. Patent No. 5,380,591 (“Keogh”)
EX-1020	U.S. Patent No. 1,727,972 (“Ford”)
EX-1021	U.S. Patent No. 1,956,730 (“Reichelt”)
EX-1022	U.S. Patent No. 3,803,340 (“Jachimowicz-340”)
EX-1023	Canadian Patent Application No. 2,058,046 (“Tessier”)
EX-1024	U.S. Patent No. 4,262,164 (“Nutt”)
EX-1025	U.S. Patent Pub. No. 2006/0169478 (“Clark-478”)
EX-1026	U.S. Patent Publication No. 2010/0206609 (“’609 Publication”)
EX-1027	U.S. Patent No. 5,670,748 (“Gingue”)
EX-1028	G.F. Moore, <i>Electric Cable Handbook</i> , BICC Cables (3rd. Ed. 1997)

EXHIBIT	DESCRIPTION
EX-1029	The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th ed. 1993)
EX-1030	Neil Sclater and John Markus, Electronics Dictionary, McGraw-Hill (6th Ed. 1997)
EX-1031	Draka – B03: Rodent protection (2009-01-19)
EX-1032	U.S. Patent No. 5,427,643 (“Aitken”)
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EX-1038	US Patent No. 7,532,794 (“Cook-794”)
EX-1039	US Patent No. 6,074,503 (“Clark-503”)
EX-1040	U.S. Patent No. 4,755,629 (“Beggs”)
EX-1041	Alcatel Cable Systems Product Catalog (circa 1988-1990)
EX-1042	U.S. Patent No. 6,378,283 (“Barton”)
EX-1043	U.S. Patent No. 6,570,095 (“Clark”)
EX-1044	U.S. Patent No. 6,365,836 (“Blouin”)
EX-1045	Declaration of Sylvia D. Hall-Ellis, PhD. re. EX-1016, EX-1017, EX-1018 and EX-1028
EX-2001	Declaration of Dr. Charles A. Eldering in Support of Patent Owner Preliminary Response (“Eldering”)
EX-2002	August 29, 2016 Amendment (U.S. Application No. 14/520,125)
EX-2003	March 7, 2017 Amendment (U.S. Application No. 14/520,125)
EX-2004	March 27, 2017 NOA (U.S. Application No. 14/520,125)
EX-2005	May 31, 2017 Original Claims (Application No. 15/610,504)
EX-2006	U.S. Patent No. 8,450,606 B2 (“McNutt”)
EX-2007	U.S. Patent Application Publication No. 2016/0037691 (“Kroushl”)
EX-2008	NEPTCO – NEPTAPE® Data Sheet – NEPTAPE Foil Free Edge Shielding Tapes: General Information (8/2000)
EX-2009	NEPTCO – NEPTAPE® Data Sheet – Foil Free Edge Shielding Tapes - NEPTAPE® F1141 (8/2000)

I. INTRODUCTION

Patent Owner respectfully submits this Preliminary Response to the Petition for *Inter Partes* Review (“IPR”) of claims 1-3, 9-14, 16-18 (the “Challenged Claims”) of U.S. Patent No. 9,991,030 B2 (“’030 Patent”) (EX-1001). The Petition is facially deficient and should be denied for several reasons.

First, Petitioner’s alleged anticipation arguments (*i.e.*, Grounds 1, 3, and 5) invite factual and legal error because they fail to establish that each of the asserted references disclose or suggest each and every element of the challenged claims of the ’030 Patent, and thus cannot satisfy the requirements for anticipation based on longstanding and well-settled principles of patent law. Recognizing this fundamental flaw in its anticipation arguments, Petitioner improperly resorted to obviousness-type analyses by blatantly relying upon conclusory and *ex post facto* hindsight reasoning to try to pick and choose various claim elements from different and unrelated embodiments in the same reference, and in some cases, from multiple references that go well beyond the “four corners” of the relied upon prior art reference. Since all of the prior art references are missing one or more of the elements of each of the independent claims, all of the anticipation grounds should be rejected.

Second, the remaining alleged obviousness grounds, most of which employ as their primary reference the same flawed anticipation reference, are woefully

insufficient for a host of reasons. In some cases, Petitioner simply repeated the same flawed anticipation arguments and did not even attempt to use the additional secondary references to try to supply the missing claim elements. In addition, Petitioner chose to disregard compelling disclosures in the asserted prior art references that expressly teach away from the proposed combinations and modifications, which would produce several disadvantages. Unable to find support for its arguments in the prior art references themselves or other documents, Petitioner repeatedly pointed to unsupported expert testimony that simply repeated *verbatim* the conclusory arguments presented by Petitioner. These conclusory arguments should be rejected not only because they are unsupported, but worse, they are contradicted by the evidentiary record. Finally, unable to articulate any rational basis for its proposed combinations and modifications, Petitioner repeatedly theorized that certain claim elements were generally “well known,” which the Federal Circuit has repeatedly rejected as an insufficient basis to support even a *prima facie* case of obviousness, let alone an ultimate conclusion of obviousness.

Because the Petition’s alleged anticipatory prior art references and combinations of prior art references all fail to teach or suggest the limitations of the challenged claims, the Board should deny institution.

II. THE '030 PATENT

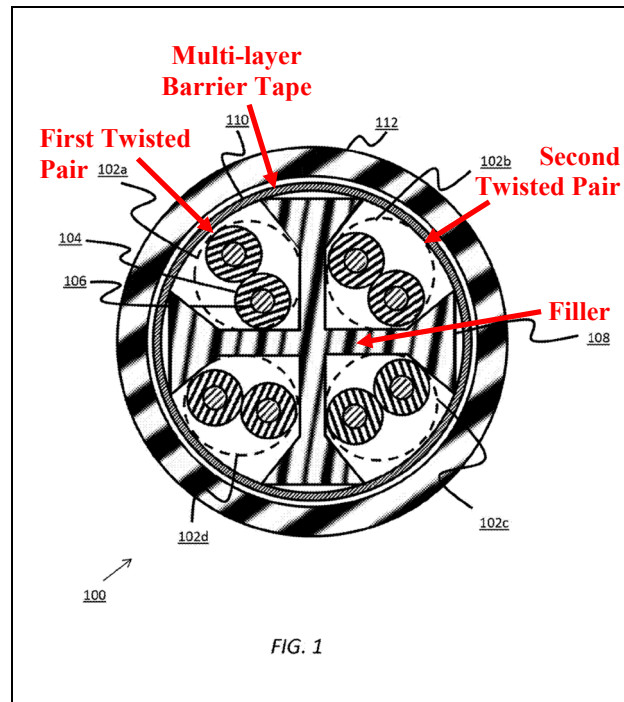
The '030 Patent is directed to the problem of “crosstalk” between adjacent twisted pairs of conductors. “Internal” crosstalk occurs within a cable when “signal flow in a first twisted pair of conductors in a multi-pair cable generates an electromagnetic field that is received by a second twisted pair of conductors in the cable and converted back to an electrical signal.” '030 Patent 1:39-44. On the other hand, “alien crosstalk is electromagnetic interference between adjacent cables” “with discrete signals [] in close proximity and parallel for long distances.” '030 Patent 1:44-50; Eldering¹ (EX-2001) ¶¶29-30.

The disclosure and claims of the '030 Patent are directed to reducing alien crosstalk between adjacent cables using a “*barrier tape*”² around helically arranged twisted pairs of conductors” and a “filler included within the cable to separate the twisted pairs and provide a support base for the barrier tape.” '030 Patent 2:22-33. Accordingly, independent claims 1 and 18 of the '030 Patent each require: (i) a first twisted pair of insulated conductors (102a); (ii) a second twisted pair of insulated conductors (102b); (iii) a filler (108) separating the first twisted pair of insulated

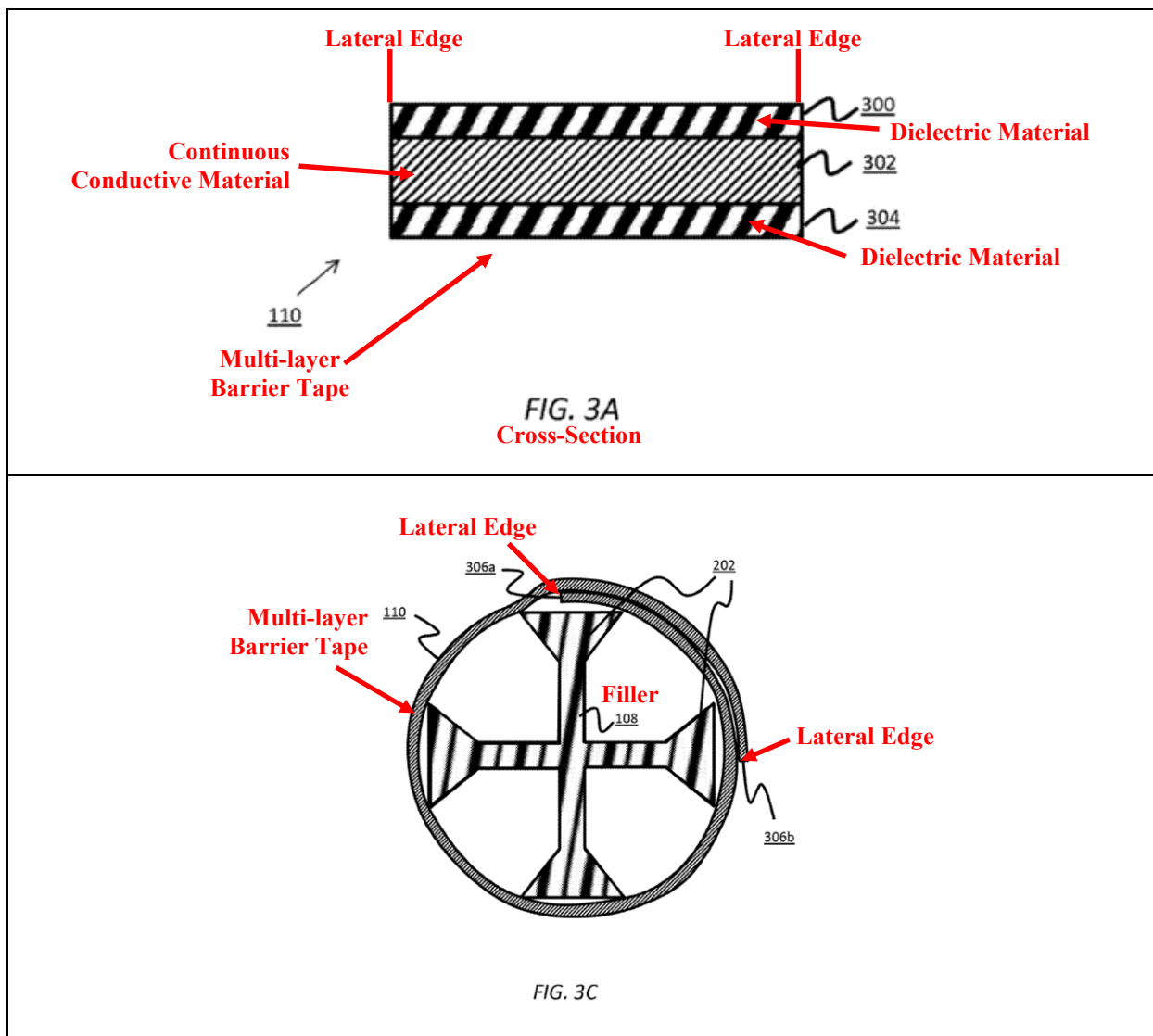
¹ “Eldering” refers to the Declaration of Dr. Charles A. Eldering in Support of Patent Owner Preliminary Response (EX-2001).

² All emphasis herein has been added unless otherwise noted.

conductors from the second twisted pair of insulated conductors; and (iii) a multi-layer conductive barrier tape (110). '030 Patent 4:48-61, 6:20-24, 7:32-34, 7:55-57, 11:26-39, 12:28-40, FIGS. 1, 3A-3E; Eldering ¶¶31-32.



The claimed barrier tape (110) also includes a continuous conductive material (302) contained between two layers of a dielectric material (300, 304), where the conductive material extends to each lateral edge (306a, 306b) of the two layers of the dielectric material. The barrier tape also surrounds the first and second twisted pair of insulated conductors and the filler. '030 Patent 6:3-10, 7:34-54, 7:64-8:5, 11:26-39, 12:28-40, FIGS. 1, 3A-3E; Eldering ¶33.



The '030 Patent is a continuation of Application No. 14/520,125, which issued as U.S. Patent No. 9,697,929 (the "'929 Patent"). During prosecution of the parent '929 Patent, the independent claims were amended to require that (i) the barrier tape was multi-layer with a conductive material contained between two layers of a dielectric material, and (ii) the conductive material of the barrier tape extends to each lateral edge of the two layers of dielectric material. EX-2002 4-7; EX-2003 2-5.

The Examiner's Reasons for Allowance stated that "[n]one of the cited prior art teaches 'the 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.'" EX-2004 ¶4.

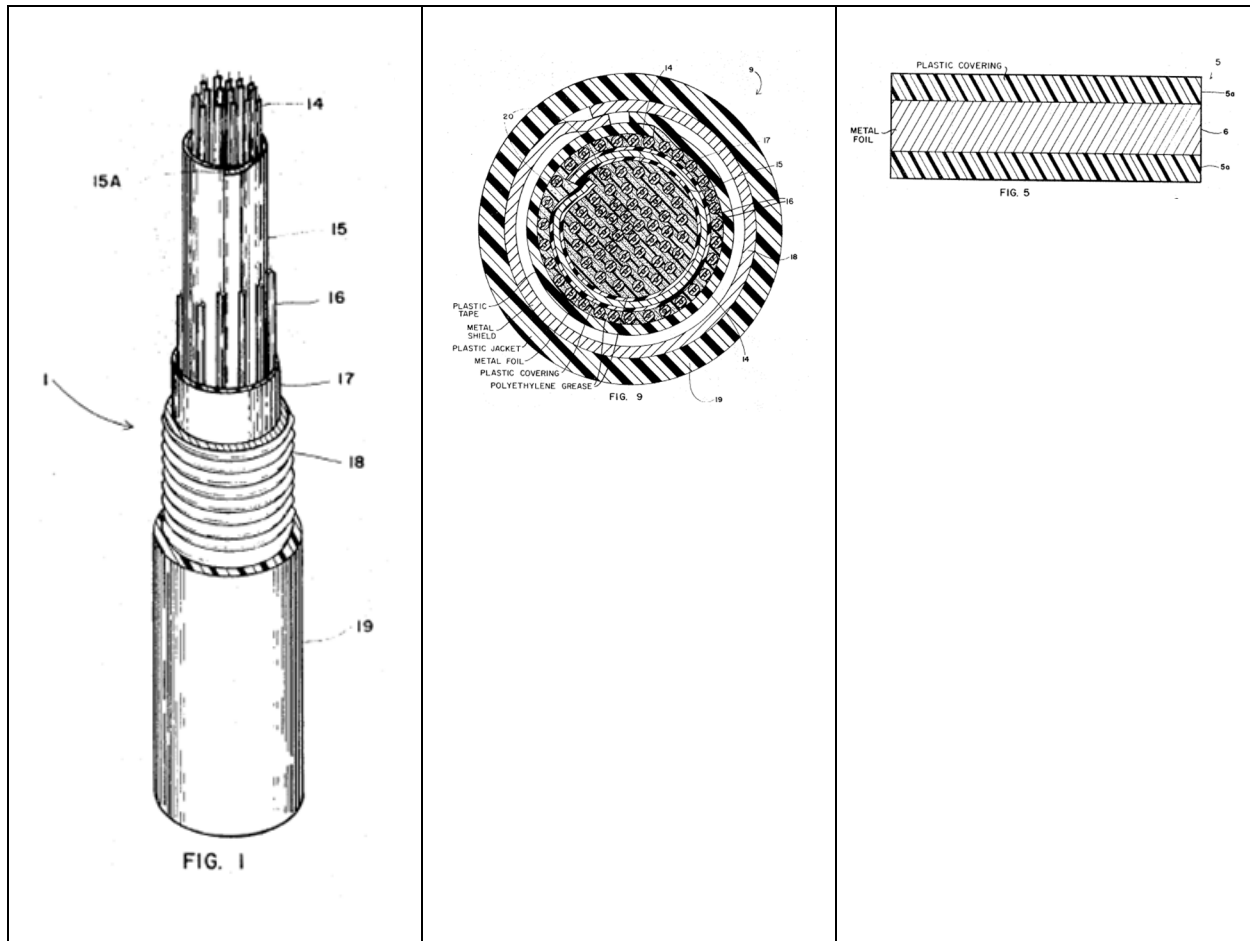
Original independent claims 1 and 18 of Application No. 15/610,504, which issued as the '030 Patent, included each of these limitations. EX-2005. In a first office action, the Examiner rejected the independent claims as obvious over Clark-478 (EX-1025) in view of Roberts (EX-1009) (EX-1002 ¶12), two of the primary references relied upon by Petitioner.

The Examiner relied upon Clark-478's alleged disclosure of "a multi-layer conductive barrier tape (76)" as follows:

With respect to claims 1-2, Clark discloses a cable (70, Fig. 2) comprising ... a multi-layer conductive barrier tape (76) comprising a continuous conductive material (*i.e.*, aluminum) contained on a layer of dielectric material (*i.e.*, mylar, Paragraph 47), wherein the conductive material extends to lateral edges of the dielectric material (mylar) and surrounding the first twisted pair of insulated conductors (50a), a second twisted pair of insulated conductors (50b), and the filler (72). EX-1002 7-8.³

³ Citations to pages numbers to Petitioner's exhibits are to the number assigned by Petitioner.

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Applicant responded by successfully distinguishing over Roberts based on how Roberts' metal foil 5, which is used for tape metal foil shield 15, was "deployed between two conductors o[f] a 'disturbing' and a 'disturbed' circuit, to prevent crosstalk between these circuits," and was not "*surrounding* the first twisted pair of insulated conductors [and] the second pair of insulated conductors" as required by the claim. EX-1003 8 (emphasis and alterations in original). After the Examiner withdrew the rejection, these original independent claims 1 and 18 issued in the '030 Patent.

III. THE CHALLENGED CLAIMS ARE NOT ANTICIPATED.

In its Petition, Petitioner alleged that three different prior art references (Cook (Ground 1), Glew (Ground 3), and Roberts (Ground 5)) anticipate all of the Challenged Claims.

Establishing invalidity by anticipation is “an especially heavy burden” for the patent’s challenger. *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1151 (Fed. Cir. 2004). “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). In addition, a prior art 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*’” in order to anticipate under 35 U.S.C. § 102. *NetMoneyIN, 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)); *see also Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1068 (Fed. Cir. 2017).

“The requirement that the prior art elements themselves be arranged as in the claim means that claims cannot be treated . . . as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325,

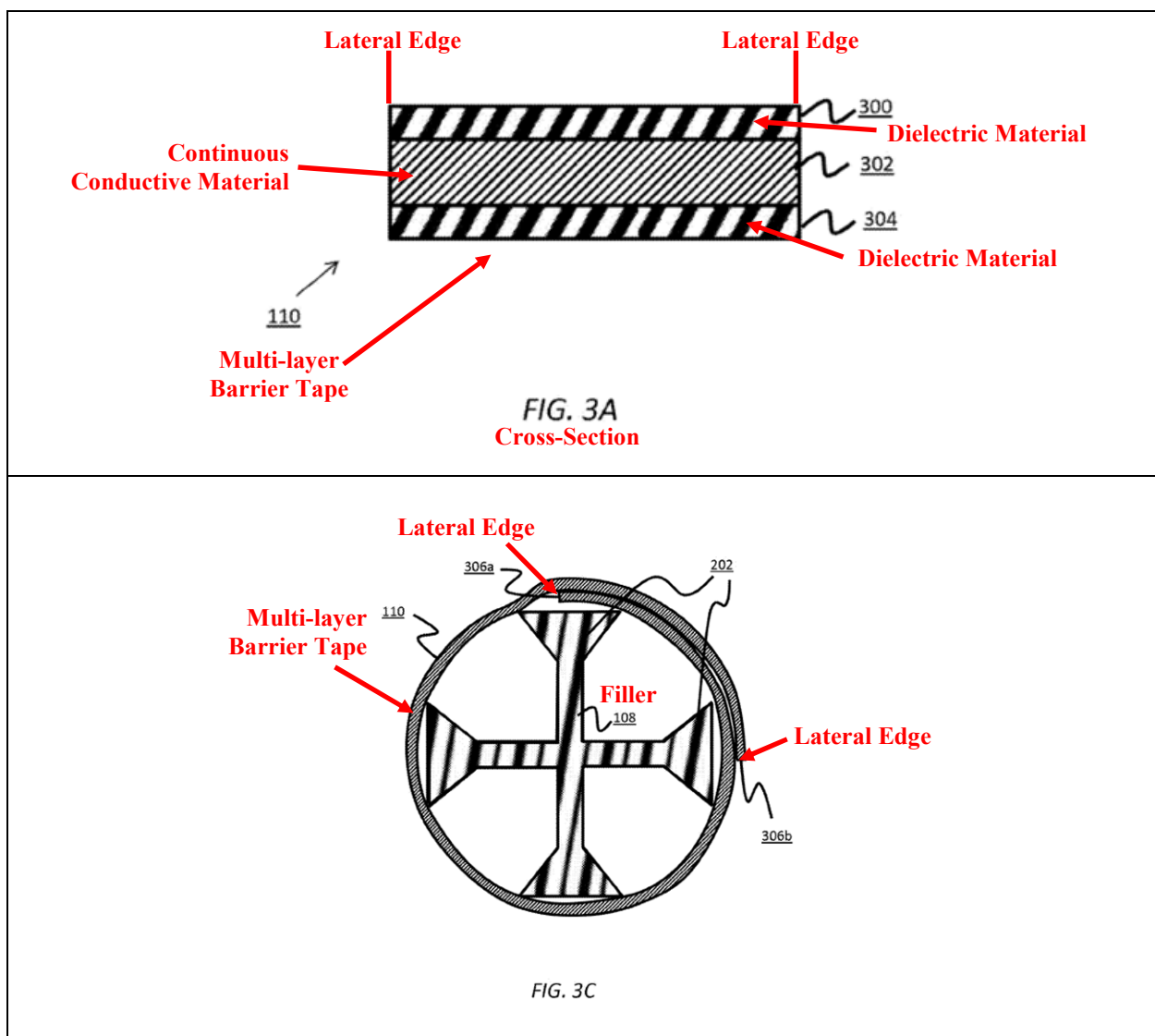
1332 (Fed. Cir. 2010) (internal quotation marks omitted). “[I]t is not enough that the prior art reference discloses part of the claimed invention, which an ordinary artisan might supplement to make the whole, or that it includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *NetMoneyIN*, 545 F.3d at 1371; *see also Microsoft*, 878 F.3d at 1069. Rather, the 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.” *NetMoneyIN*, 545 F.3d at 1371 (quoting *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972)). “[D]ifferences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness, not anticipation.” *NetMoneyIN*, 545 F.3d at 1371.

Ignoring all of the stringent requirements for establishing anticipation, each of Petitioner’s anticipation grounds improperly go well beyond the “four corners” of the relied upon prior art reference and/or “pick and choose” among various unrelated disclosures in the reference, and thus should be rejected.

A. Regarding Ground 1, Cook Admittedly Fails To Anticipate Any Of The Challenged Claims.

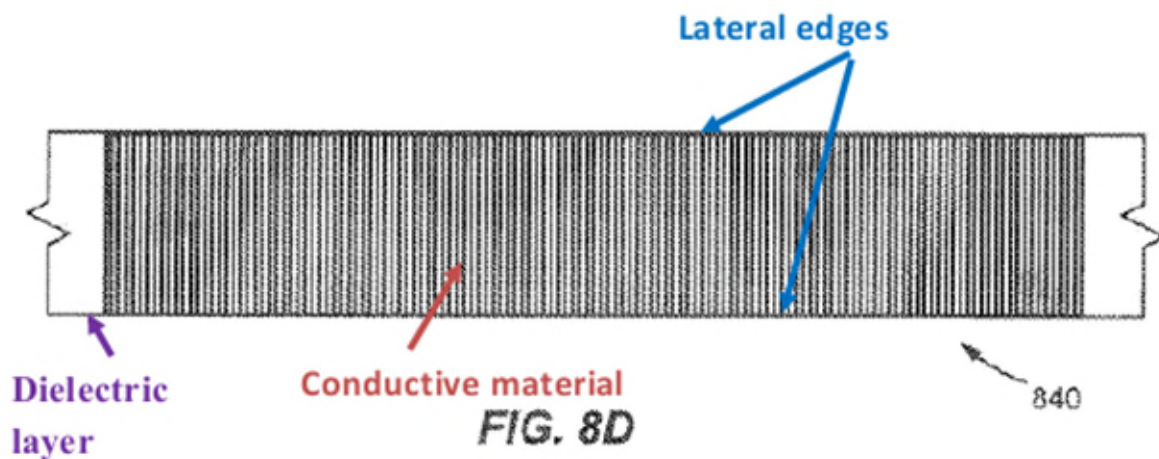
Petitioner alleged that Cook (EX-1010) anticipates all of the Challenged Claims. Pet. 17-31. Independent claims 1 and 18 each require a multi-layer barrier

tape (110) that comprises a conductive material (302) contained between two layers of a dielectric material (300, 304), where the conductive material extends to each lateral edge (306a, 306b) of the two layers of the dielectric material. '030 Patent 6:3-10, 7:34-54, 7:64-8:5, 11:31-39, 12:28-40, FIGS. 1, 3A-3E. In addition, independent claim 1 requires that the conductive material be “continuous.” '030 Patent 6:3-6, 7:34-37, 11:31-39, FIG. 3A; Eldering ¶¶34-35.



Regarding the independent claims' requirement that the conductive material extend to each lateral edge of the two layers of the dielectric material, Petitioner relied upon *two different embodiments* in Cook (*i.e.*, shown in FIGS. 8D and 11). Pet. at 20-22; Cornelison⁴ (EX-1006) ¶¶84-87. But neither of these embodiments disclose a conductive barrier tape comprising a conductive material contained between two layers of a dielectric material, as also required by independent claims 1 and 18. Eldering ¶35.

For example, Petitioner (Pet. 20) provided the following annotated illustration of the separator or shield layer 840 shown in FIG. 8D of Cook, which is described in Cook as being “a top level (or bottom level) view.” Cook 23:58-64; Eldering ¶36.

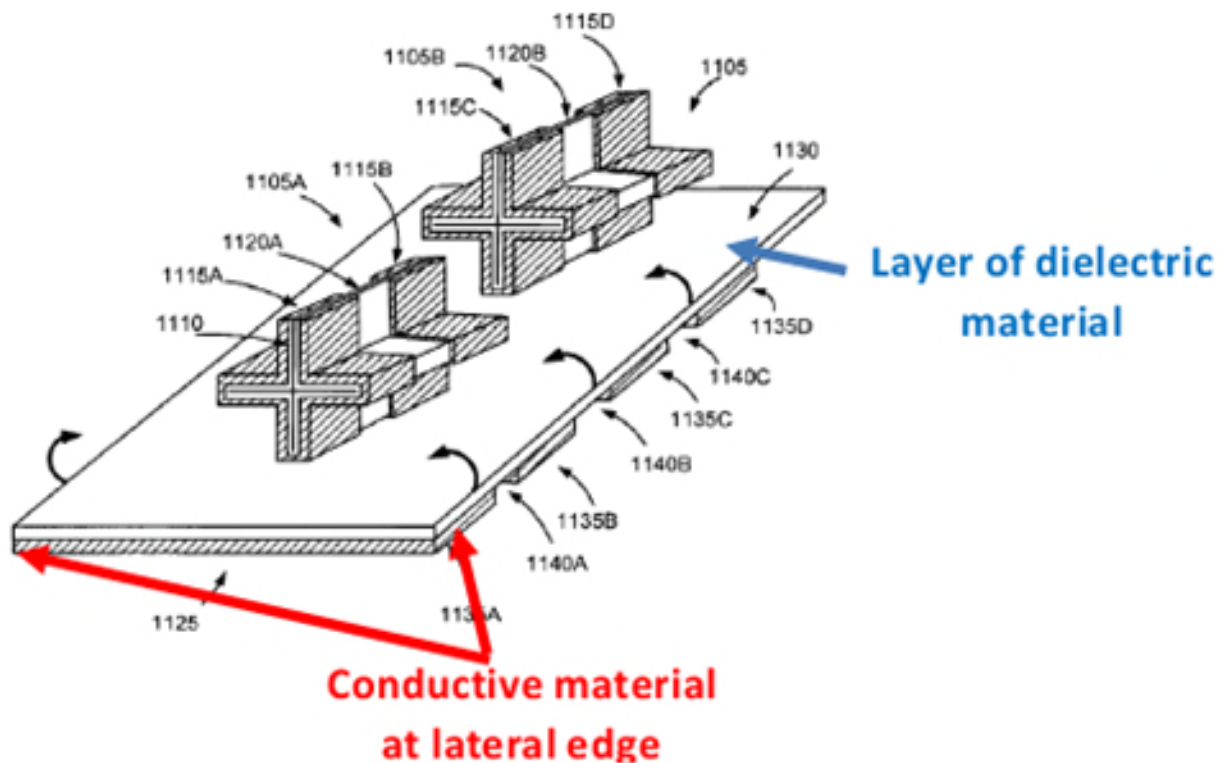


As shown in FIG. 8D, Cook expressly discloses that the conductive material

⁴ “Cornelison” refers to the Expert Declaration of Kenneth Cornelison (EX-1006) filed by Petitioner.

in the embodiments illustrated in FIGS. 8A-8D is formed on a *single* dielectric layer. Cook 22:62-23:5. And since the conductive material is clearly visible on the surface of the *single* layer of dielectric material in the top level (or bottom) level view of FIG. 8D, *the conductive material is not contained between two layers of a dielectric material*, as expressly required by independent claims 1 and 18. Eldering ¶¶37-38.

Similarly, Petitioner (Pet. 21) provided the following annotated illustration of the separator or shield layer 1125 shown in FIG. 11. Cook 25:39-63; Eldering ¶39.

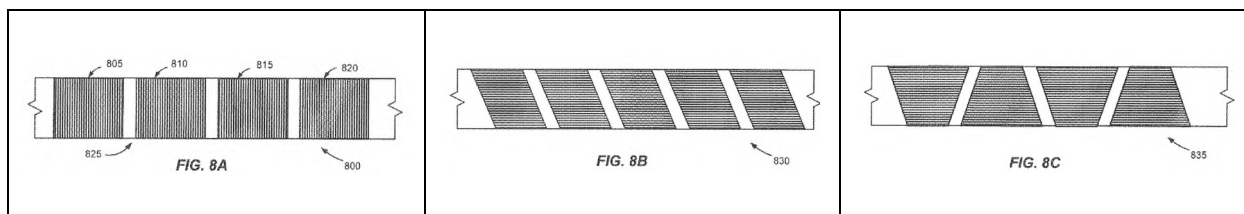


As shown in FIG. 11, Cook expressly discloses that the conductive patches 1135A-D of the shield layer 1125 are formed on a *single* substrate (dielectric) layer 1130. Cook 25:51-57. And since the conductive patches 1135A are clearly visible

on the surface of the *single* substrate layer 1130 of dielectric material in the illustration of FIG. 11, *the conductive material is not contained between two layers of a dielectric material*, as expressly required by independent claims 1 and 18. Eldering ¶¶40-41.

Regarding the additional requirement of independent claim 1 that the conductive material contained between two layers of a dielectric material be *continuous*, Petitioner relied upon various embodiments in Cook (*i.e.*, shown in FIGS. 7B & 8A-8D). Pet. at 19, 21-22; Cornelison ¶¶82, 87. But, once again, none of those embodiments disclose a continuous conductive material contained between two layers of a dielectric material, as also required by independent claim 1. Eldering ¶42.

For example, Petitioner cited to the text of Cook at column 6, line 50, to column 7, line 20. Pet. 19 (citing Cook 6:50-7:20). But that text only refers to “a *relatively* continuous shield” (*i.e.*, not continuous) or “a discontinuous shield,” as shown in FIGS. 8A-8C. Cook 6:52-7:9; Eldering ¶43.



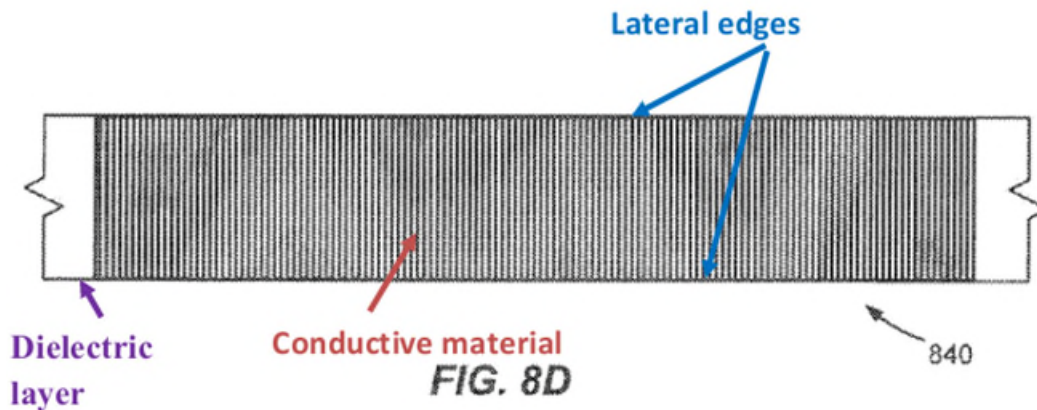
As shown above, Cook expressly discloses that the “discontinuous” conductive material in those shield layers is formed on a *single* dielectric material

layer (Cook 22:62-23:5) and *is not contained between two layers of a dielectric material*, as expressly required by independent claim 1. Eldering ¶¶44.

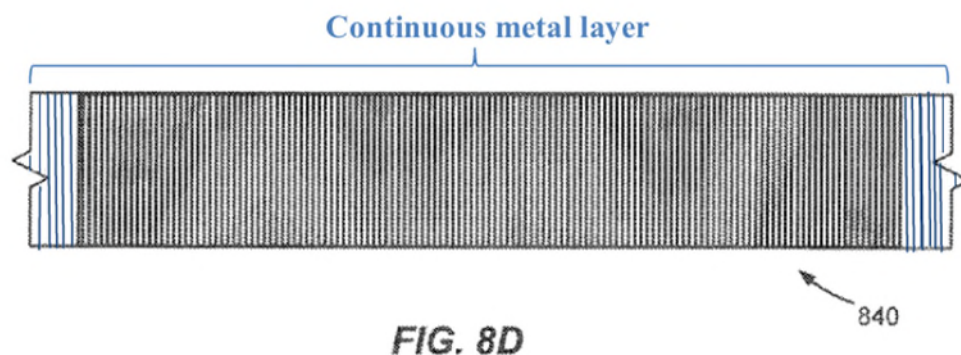
Furthermore, this section of Cook incorporates by reference another patent application (Application No. 12/653,804 that issued as U.S. Patent No. 8,450,606 B2 (“McNutt”) (EX-2006)) with a common inventor to Cook (Christopher W. McNutt), which expressly teaches away from using a continuous shield. Pet. 19 (citing Cook 6:59-66). For example, McNutt teaches that “*complications can arise* when a cable is encased by a *shield that is electrically continuous* between the two ends of the cable.” McNutt 1:63-2:4. One of the complications is that “[i]f a person contacts the shielding, the person may receive a shock if the shielding is not properly grounded.” McNutt 2:5-15. Another complication is that “a continuous shield can also set up standing waves of electromagnetic energy based on signals received from nearby energy sources.” McNutt 2:16-21. To avoid these “complications,” McNutt discloses a tape that “can be a shield that is electrically discontinuous or exhibits a high level of resistance between opposite ends of a cable.” McNutt 2:39-60, 4:20-36 (“The present invention supports shielding a communication cable, wherein at least one break or discontinuity in a shielding material electrically isolates shielding at one end of the cable from shielding at the other end of the cable.”); Eldering ¶¶45-47.

Petitioner also cited to the text of Cook at column 11, line 64 to column 12,

line 5. Pet. 19. But that text also only refers to “a *relatively* continuous shield.” Similarly, Cook describes the conductive material of the shield layer 840, which is shown in FIG. 8D and annotated by Petitioner (Pet. 20, 22), as being “*relatively* continuous” with a dielectric end. Cook 23:58-67; Eldering ¶¶48-49.

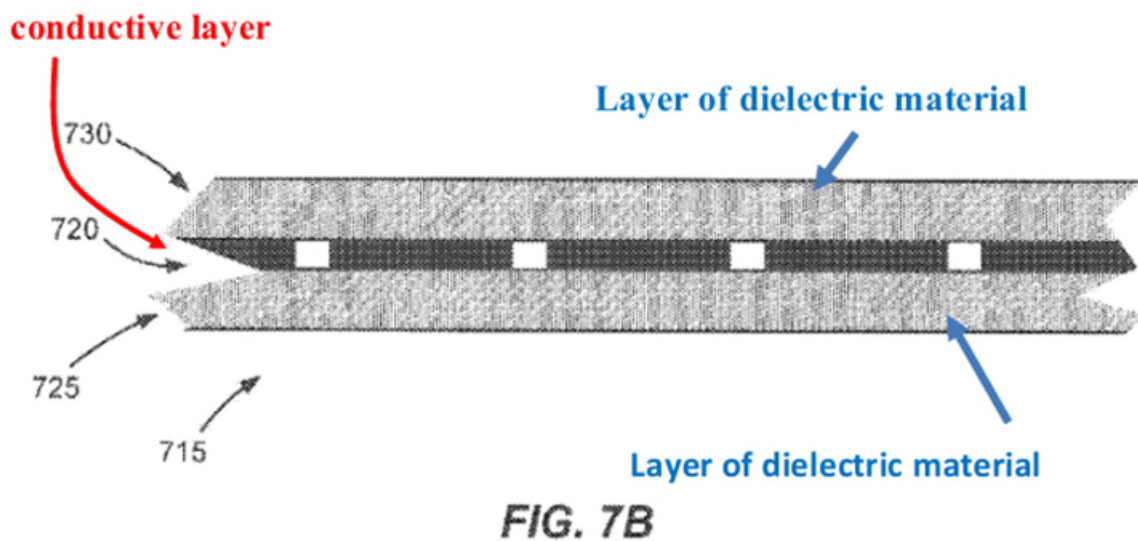


In fact, despite proffering an anticipation rejection, Petitioner improperly proposed to modify the shield layer 840 in FIG. 8D to try to provide the missing continuous conductive material, thus paradoxically admitting that FIG. 8D does not disclose a continuous conductive material after all, as shown in the figure below annotated by Petitioner. Pet. 21-22; Eldering ¶¶50.



As shown in FIG. 8D, Cook expressly discloses that the “relatively” continuous conductive material is formed on a *single* layer of dielectric material (Cook 22:62-23:5) and is not contained between two layers of a dielectric material as expressly required by independent claim 1. Eldering ¶51.

Finally, Petitioner also relied upon the shield layer disclosed in FIG. 7B of Cook, despite paradoxically admitting that it discloses “a *discontinuous* ‘electrically conductive layer 720’,” as shown in the figure below annotated by Petitioner. Pet. 19 (citing Cook 22:39-41, FIG. 7B); Eldering ¶52.



Since Cook does not disclose any shield layer (or barrier tape) with conductive material contained between *two layers* of a dielectric material and extending to each lateral edge of the two layers of the dielectric material, Cook cannot anticipate independent claims 1 and 18 or any of the dependent claims. Eldering ¶53; *see NetMoneyIN*, 545 F.3d at 1371 (reversing anticipation finding based on combining

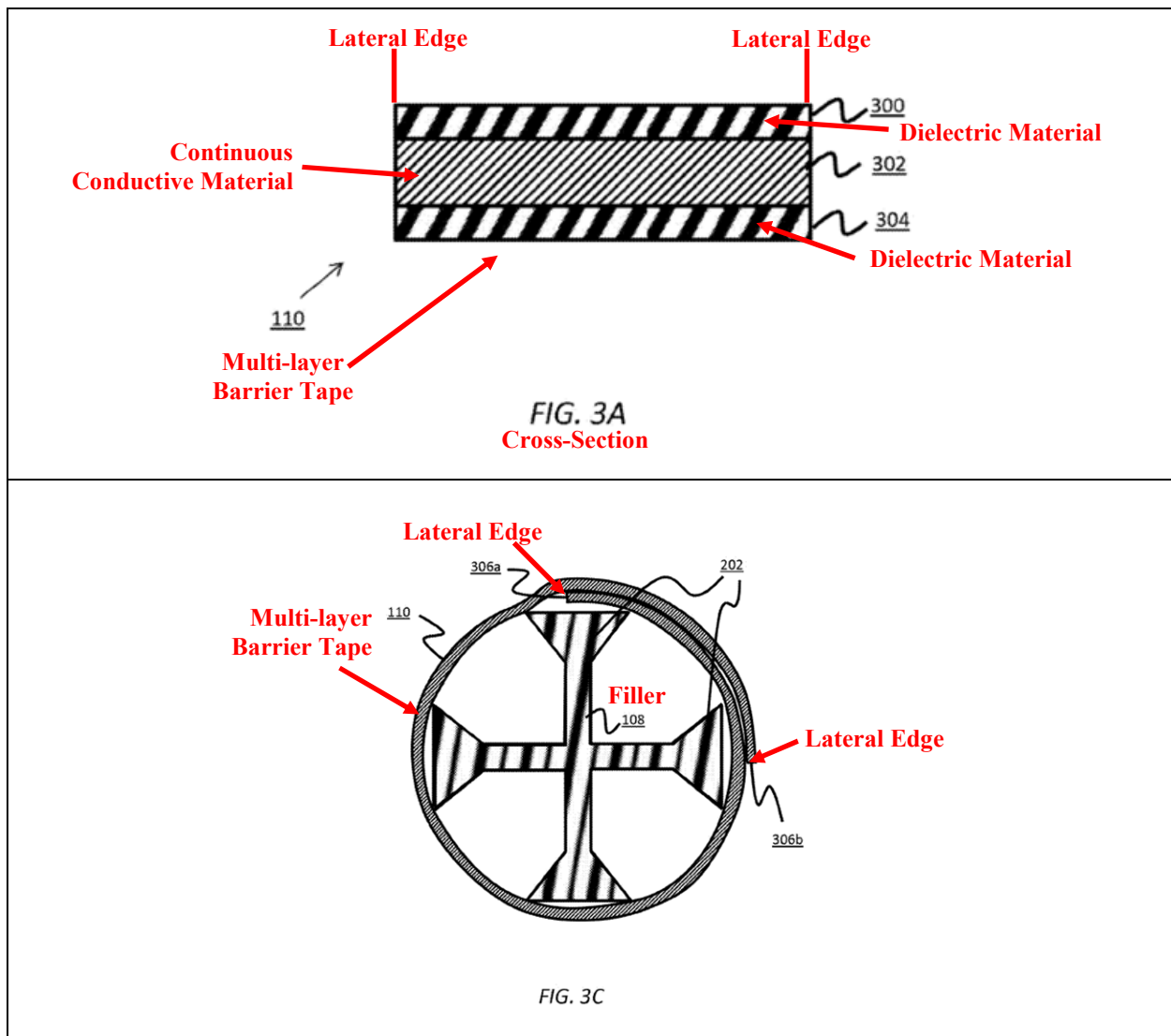
parts of two separate embodiments to meet all of the claim elements, when neither embodiment alone contained all of the elements); *see also Microsoft*, 878 F.3d at 1069. And since Cook does not disclose any shield layer (or barrier tape) with *continuous* conductive material contained between two layers of a dielectric material, Cook cannot anticipate independent claim 1 or any of the dependent claims for that additional reason. Accordingly, 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. It thus should be rejected accordingly.⁵ Eldering ¶54.

B. Regarding Ground 3, Glew Admittedly Fails To Anticipate Any Of The Challenged Claims.

Petitioner alleged that Glew (EX-1008) anticipates all of the Challenged Claims. Pet. 34-48. Independent claims 1 and 18 each require a multi-layer barrier tape (110) that comprises a conductive material (302) contained between two layers

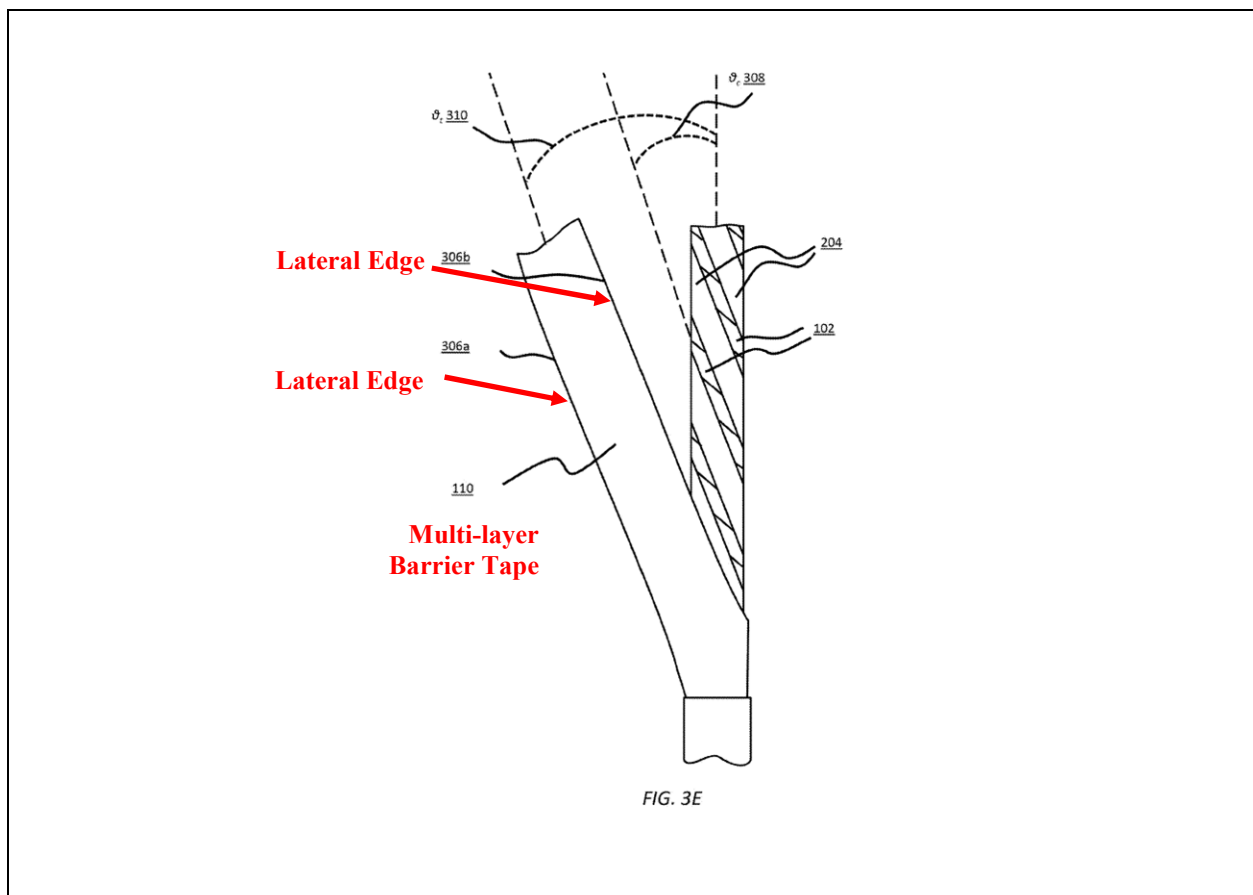
⁵ Ground 2 alleged that dependent claim 11, which depends from claim 1, is rendered obvious by the combination of Cook and/or Glew. Pet. 31-33. Since Ground 2 only focused on the additional claim element(s) added in claim 11 and did not even attempt to remedy Cook's failure to disclose the missing elements of independent claims 1 and 18, it should also be rejected. Eldering ¶55.

of a dielectric material (300, 304), where the conductive material extends to each lateral edge (306a, 306b) of the two layers of the dielectric material. '030 Patent 6:3-10, 7:34-54, 7:64-8:5, 11:31-39, 12:28-40, FIGS. 1, 3A-3E; Eldering ¶¶56-57.



Regarding the independent claims' requirement that the conductive material extend to each lateral edge of the two layers of the dielectric material, the specification and drawings of the '030 Patent make it clear that the relevant "lateral

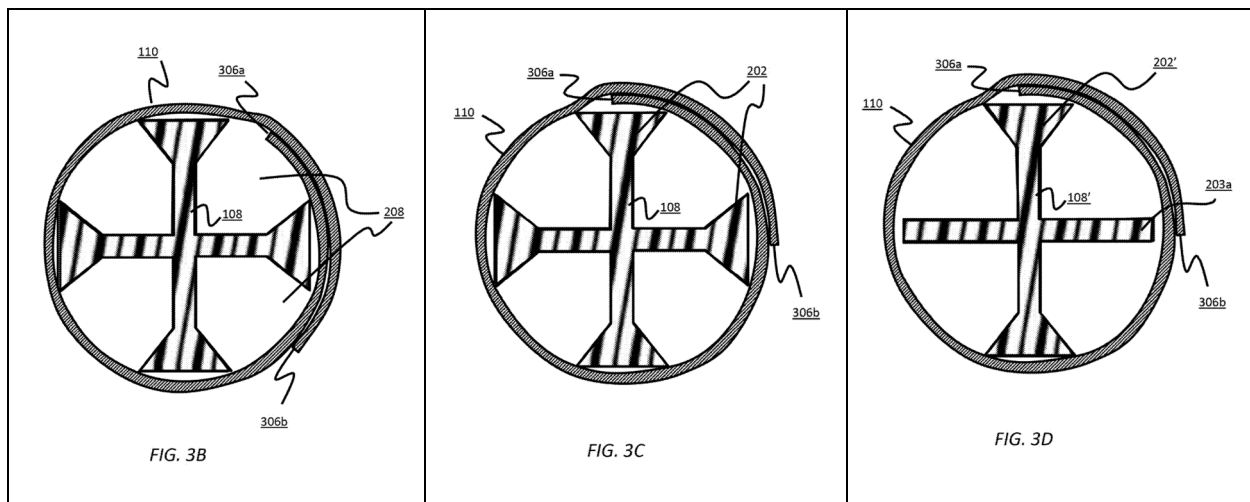
edges” of the barrier tape are the conductive edges (306a, 306b) running along the sides of the tape parallel to (or in) the longitudinal direction and exposing the conductive material 302. ’030 Patent 7:64-8:3 (“Referring now to FIG. 3B, illustrated is a cross section of an embodiment of a barrier tape 110 around the filler 108 of FIG. 2A. The tape 110 has a *first edge 306a* and a *second edge 306b*, referred to generally as edge(s) 306 of the barrier tape 110.”), FIGS. 3B-3E; Eldering ¶58.



In describing the application of the barrier tape 110 shown in FIG. 3E, the ’030 Patent explains that “the *tape edge 306* will continue to follow the end portion 204 of the terminal portion without ever crossing above a channel or pair 102. This

prevents electrical coupling of pairs 102 to *conductive edges 306* of tape 110, and thus reduces leakage and ANEXT.” ’030 Patent 8:38-46, FIG. 3E; Eldering ¶59.

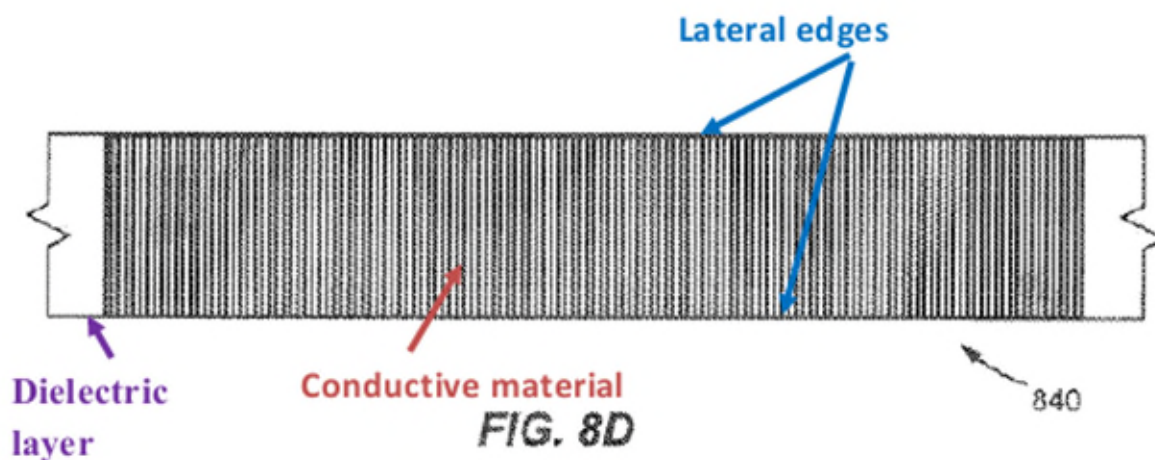
Since the conductive material 302 is exposed along the conductive lateral edges 306a, 306b of the barrier tape 110, the ’030 Patent teaches that these conductive lateral edges should be placed above the terminal portions 202 of the filler 108 (as shown in FIGS. 3C and 3D), and not above the channels 208 holding the twisted pairs (as shown in FIG. 3B), to avoid electrical coupling of the *exposed conductive lateral edges 306a, 306b* and the twisted pairs 102. ’030 Patent 8:3-25, FIGS. 3B-3D; Eldering ¶60.



In addition to the specification and drawings of the ’030 Patent, *where the only edges discussed or identified are lateral edges 306a, 306b*, two of Petitioner’s

relied upon prior art references confirm that a POSITA⁶ would understand that a tape's "lateral edges" constitute the edges running along the sides of the tape parallel to the longitudinal direction. Eldering ¶¶61.

First, in Ground 1, Petitioner provided the following annotated illustration of the shield layer or separator 840 shown in FIG. 8D of Cook (Pet. 20), which describes the "electrically conductive material running along a longitudinal length of the separator." Cook 23:58-67; Eldering ¶¶62.

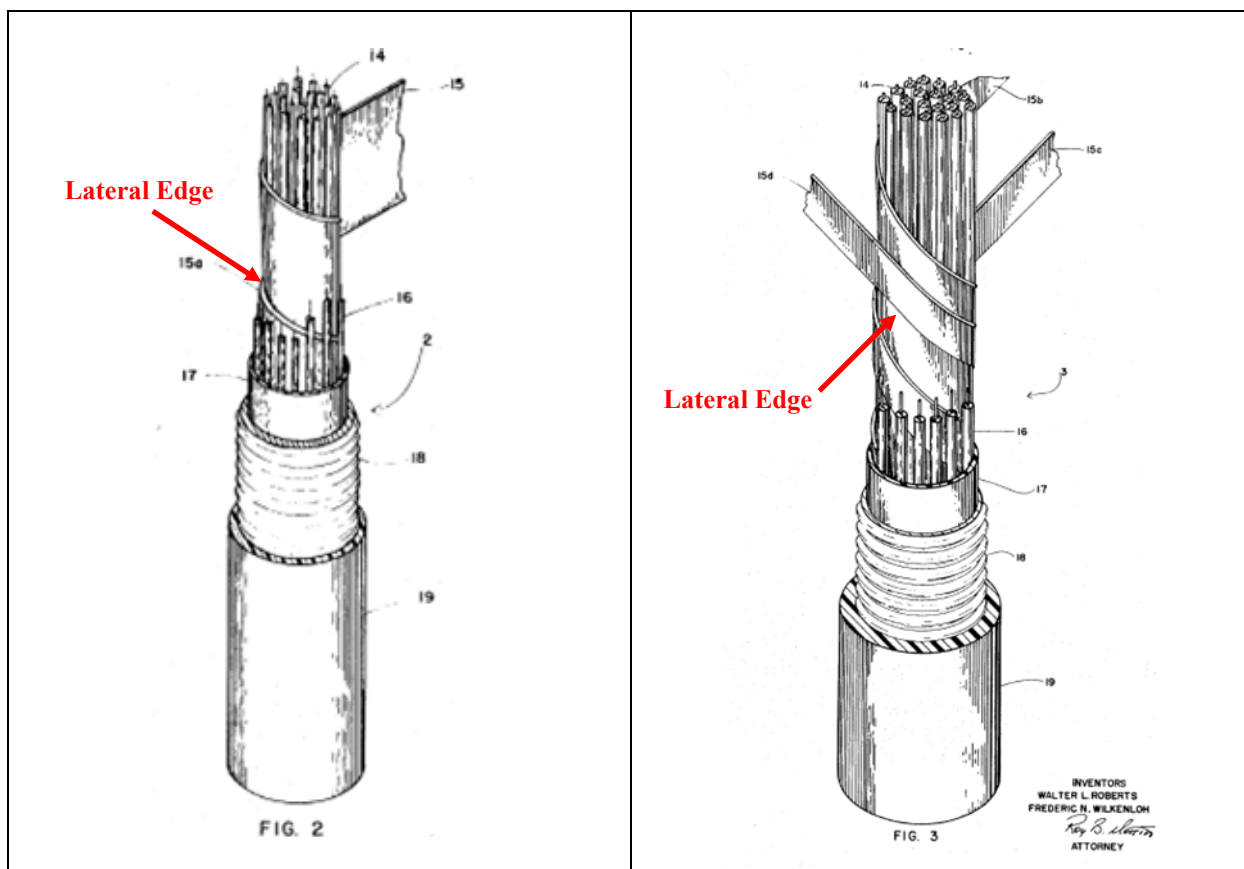


Those edges running along the side of the tape parallel to the longitudinal direction in Cook, labeled by Petitioner as "lateral edges," are the same as lateral edges 306a,

⁶ All references to a POSITA herein refer to a "person of ordinary skill in the art" at the time of the claimed invention (2013). Eldering ¶¶23-26. Any differences between the parties' proposals definitions of POSA are insubstantial and do not impact the analysis of the issues presented.

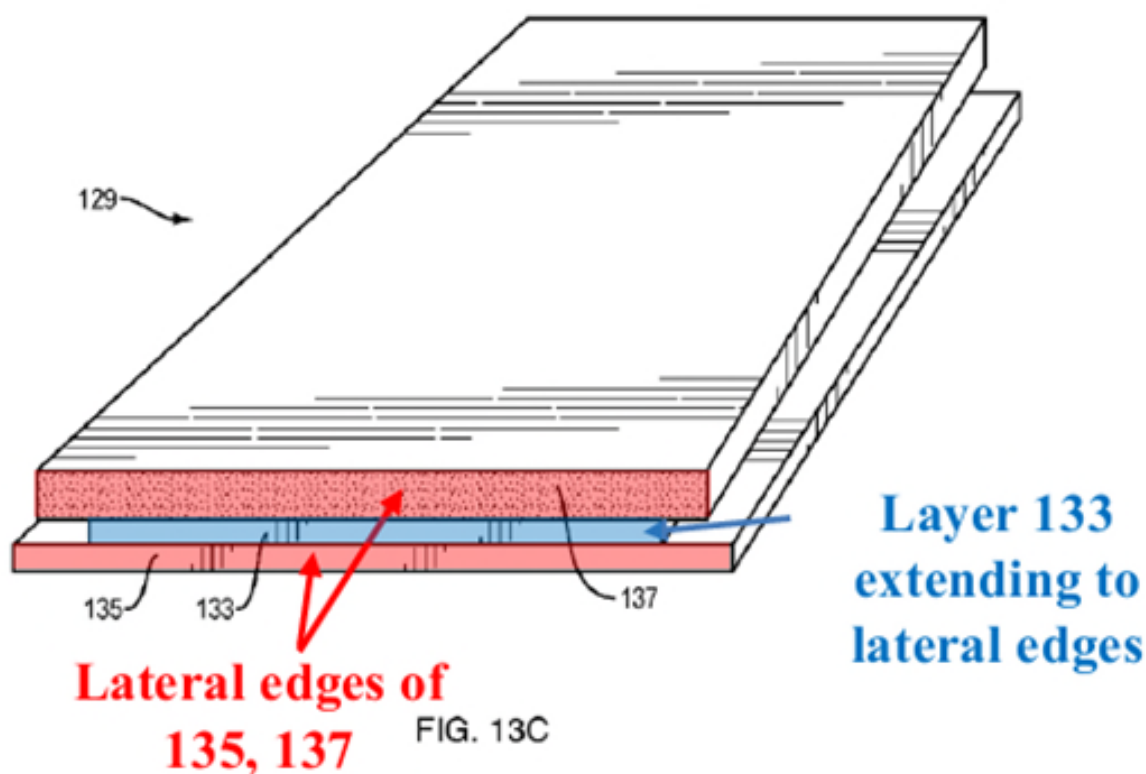
306b disclosed and claimed in the '030 Patent. Eldering ¶63.

Second, another of Petitioner's prior art references (Roberts (EX-1009)) also confirms that POSITA would understand that a tape's "lateral edges" constitute the edges running along the sides of the tape parallel to the longitudinal direction. For example, Roberts' metal foil shield tapes 15 in FIGS. 2 and 3 (a cross-section of which is shown in FIG. 10) have edges running along the sides of the tape parallel to the longitudinal direction (like the conductive lateral edges 306a, 306b of the barrier tape 110 in the '030 Patent) that are described as being "lateral edges." Eldering ¶64.



Roberts 2:20-24 (“FIG. 3 ... showing two groups of electrical conductors separated by a shield made from a plurality of tapes helically disposed, *the lateral edges of which overlap adjacently lying tapes*”), 2:42-46 (“a shield composed of a plurality of tapes made from a metal foil coated on both sides with a plastic, *the lateral edges of which overlap* adjacently disposed tapes”), 4:27-33 (“the plastic-coated metal foil shield (15) [FIG. 2] has *lateral edges that overlap*,” “*the lateral edges of the shield overlapping* one another. (See [15 a])”), 4:34-40 (“The *lateral edges of the helically disposed tapes [of FIG. 3] overlap adjacently lying tapes*.”), 5:65-75 (“the shield (15) [of FIG. 10] is made up of a plurality of tapes, *the lateral edges of which overlap adjacently disposed like tapes*”), FIGS. 2, 3, 10. Accordingly, the claimed “lateral edge[s]” of the barrier tape are the edges running along the sides of the tape parallel to the longitudinal direction. Eldering ¶¶64-65.

But Petitioner improperly ignored a POSITA’s understanding of the claimed “lateral edges” in alleging that Glew anticipates independent claims 1 and 18. Pet. at 36-37. Desperate to make up for such a lack of disclosure of the claimed barrier tape, where the conductive material extends to each lateral edge of the two layers of the dielectric material, Petitioner resorted to incorrectly annotating FIG. 13C in Glew, as shown below.

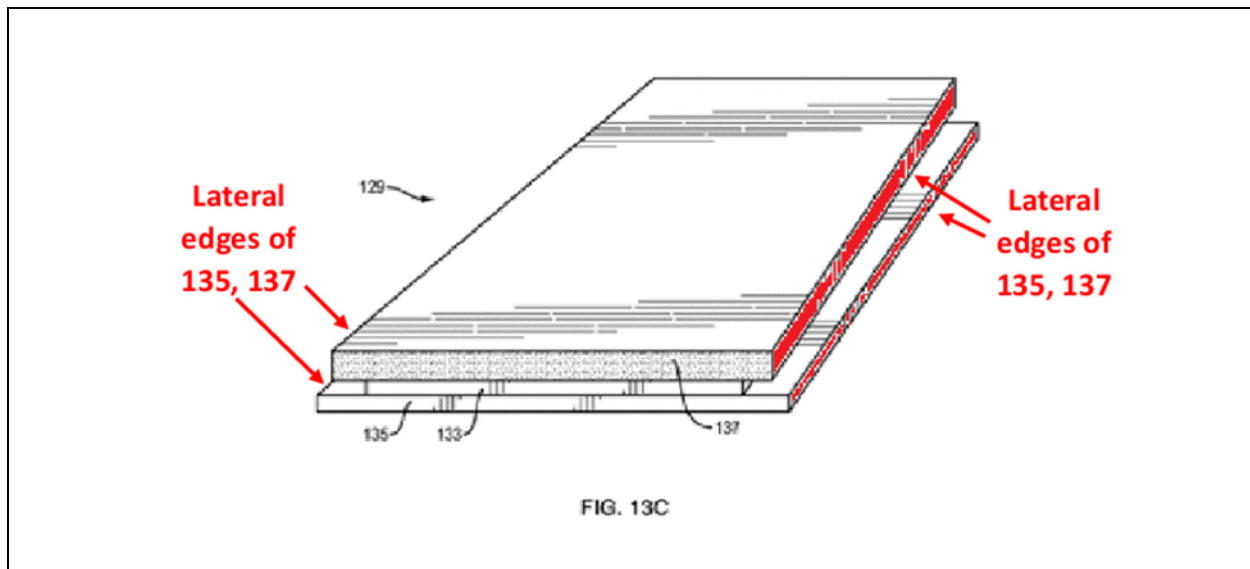


Pet. 37; Eldering ¶66.

Without offering any claim construction for the term “lateral edge,” as it was required under 37 C.F.R. § 42.104(b)(3) to do so in its Petition, Petitioner and its expert (Cornelison ¶136) self-servingly theorized that “the metallic layer 133 [in Grew] extends to *the front edges of dielectric layers 135 and 137, which can be considered “lateral edges” of these two dielectric layers*” Pet. 37. But, as explained above, since the “lateral edge[s]” of Glew’s tape 129 are the edges running along the sides of the dielectric layers 135, 137 parallel to the longitudinal direction, the “front edges” of the tape 129 in FIG. 13C identified by Petitioner are not lateral edges, *but instead are the ends of the tape* or the cross-section prior to the ends of

the tape. Eldering ¶67.

Tellingly, Petitioner acknowledged this fact by providing the following annotated figure later in the Petition in its obviousness argument that illustrates how the actual lateral edges in Glew are the edges running along the sides of the tape parallel to the longitudinal direction.



Pet. 49. Applying 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. Eldering ¶¶68-69.

Recognizing the deficiencies in its theory that Glew’s metallic foil layer 133 somehow extends to the lateral edges of the dielectric layers 135, 137, which it does not, Petitioner invited the Board to ignore the actual details of FIG. 13C simply because Glew describes the figures as “schematically” depicting or illustrating the multi-layer tape 129. Pet. 37 (citing Glew ¶¶[0077-78], [0190], [0195]). In other

words, Petitioner speculated that since FIG. 13C is described as “schematic,” as is the case for all thirty-four of the detailed patent figures shown in Glew (Glew ¶¶[0054]-[0087]), the figures do not show what they, in reality, do show. Eldering ¶70.

For example, Petitioner speculated that, even though FIG. 13C (and FIGS. 13A, 13B, and 13D) **actually show** metallic and dielectric layers of different widths offset relative to each other, a “POSITA would understand that the figure is intended to identify and illustrate the three different layers of the multi-layer tape, **not to show** that these layers must be or are intended to be offset relative to each other when the tape is employed in a cable.” Pet. 37-38. Furthermore, Petitioner speculated 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.” Pet. 38 (citing Cornelison ¶¶137-138); Eldering ¶71.

As an initial matter, Petitioner’s reliance on its expert’s speculative testimony (Cornelison ¶¶137-138), which in turn points to YouTube videos and other prior art references (EX-1037 and Ex-1038), is impermissible for its proposed Ground 3 **anticipation** challenge based on Glew. *See Cont’l 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.”). Moreover, even if the

Board were to improperly consider evidence outside of the four corners of Glew, the evidence does not support Petitioner’s theory that Glew FIG. 13C does not actually show what it, in reality, does show (*i.e.*, that the metallic foil layer 133 does **not** actually extend to the lateral edges of the dielectric layers 135, 137); Eldering ¶72.

For example, Petitioner alleged that *other tapes* are “*typically*” (*i.e.*, not always) manufactured with layers having the same width. In other words, Petitioner admitted that some tapes are actually made with layers having different widths, as shown in FIG. 13C. Indeed, Petitioner expressly admitted that tapes where each layer had a different width, as shown in every tape in FIGS. 13A-13D in Glew, would involve “custom-making” the tapes (Pet. 38) (*i.e.*, admitting that a POSITA would understand that Glew’s tape with layers having different widths could actually be custom-made). Eldering ¶72.

Similarly ineffective is Petitioner’s criticism that “Glew does not suggest that such an alternative process would be used or that having different layer widths would be important or advantageous.” Pet. 38. Glew’s alleged lack of discussion of the advantages⁷ of having different layers widths does nothing to disturb that fact that

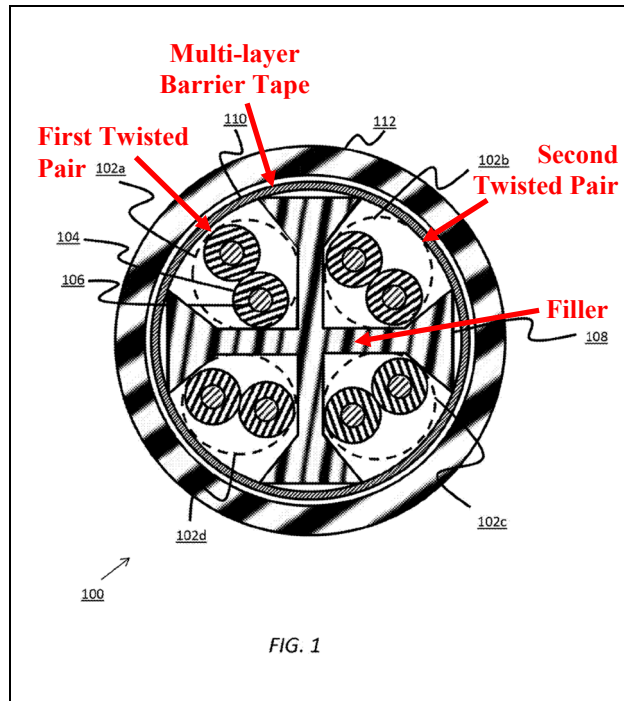
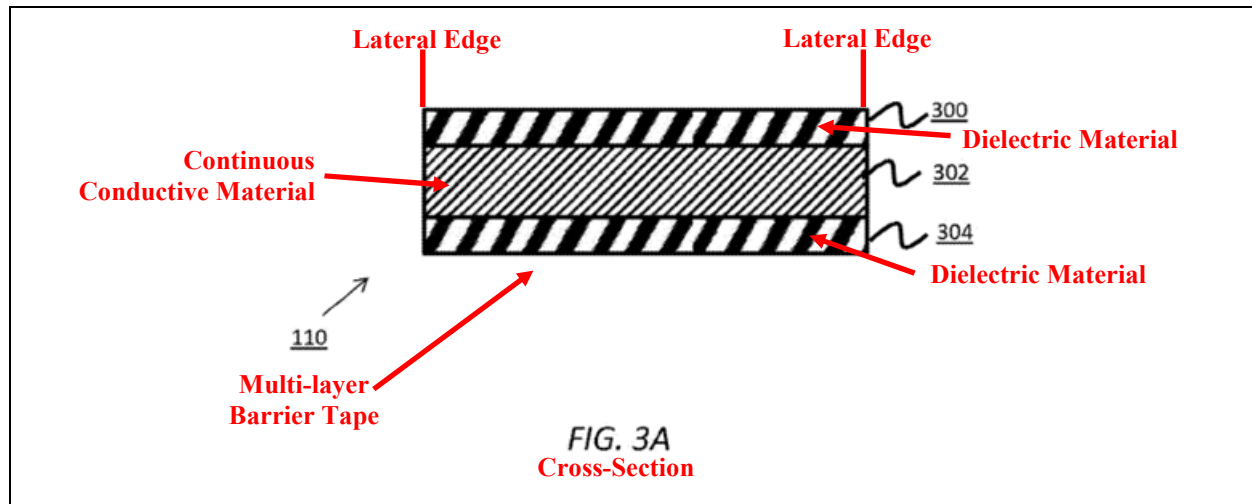
⁷ As will be explained in Ground 4, a POSITA would understand that Glew’s disclosure in FIG. 13C of a “foil free edge tape” (*i.e.*, where the conductive layer is not exposed on the lateral edges of the tape) has several advantages.

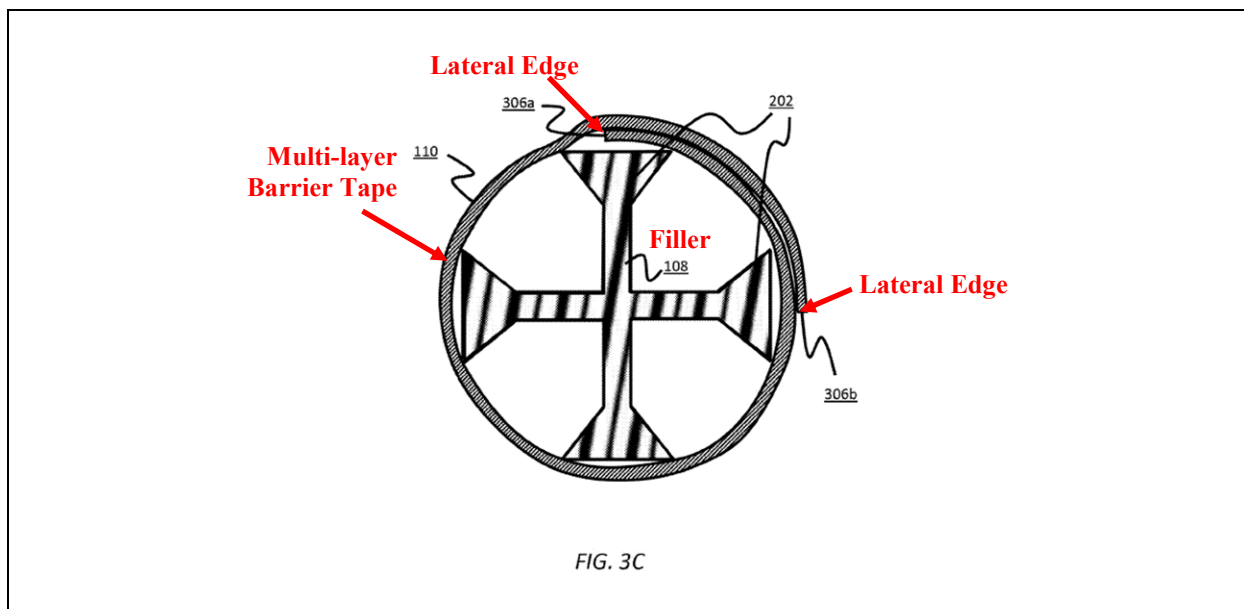
FIG. 13C actually discloses, and would be understood by a POSITA to disclose, that the metallic foil layer 133 has a narrower width that does not extend to the lateral edges of the wider dielectric layers 135, 137. Eldering ¶70.

Since 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. Ground 3 thus should be rejected. Eldering ¶73.

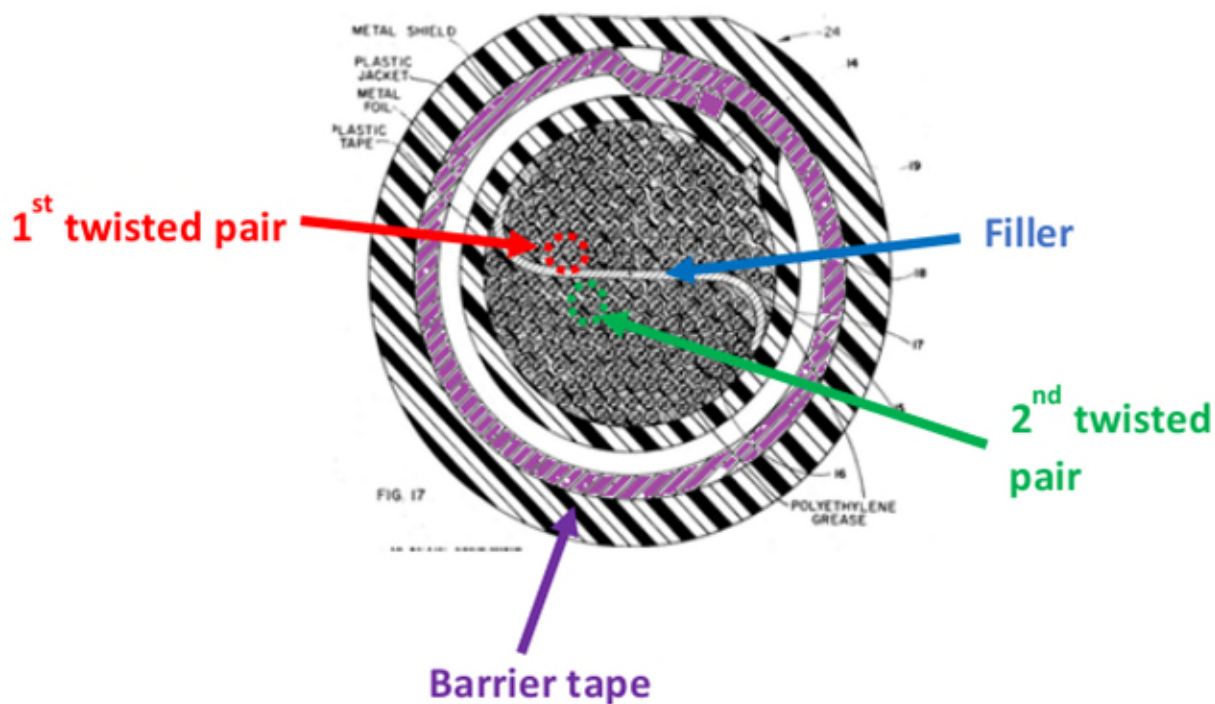
C. Regarding Ground 5, Roberts Admittedly Fails To Anticipate Any Of The Challenged Claims.

Petitioner also alleged that Roberts (EX-1009) anticipates all of the Challenged Claims. Pet. 54-68. Independent claims 1 and 18 each require a multi-layer barrier tape (110) that includes a conductive material (302) contained between two layers of a dielectric material (300, 304), where the conductive material extends to each lateral edge (306a, 306b) of the two layers of the dielectric material, and the barrier tape surrounds the first (102a) and second (102b) twisted pairs of insulated conductors and the filler (108). '030 Patent 6:3-10, 7:34-54, 7:64-8:5, 11:26-39, 12:28-40, FIGS. 1, 3A-3E; Eldering ¶75.

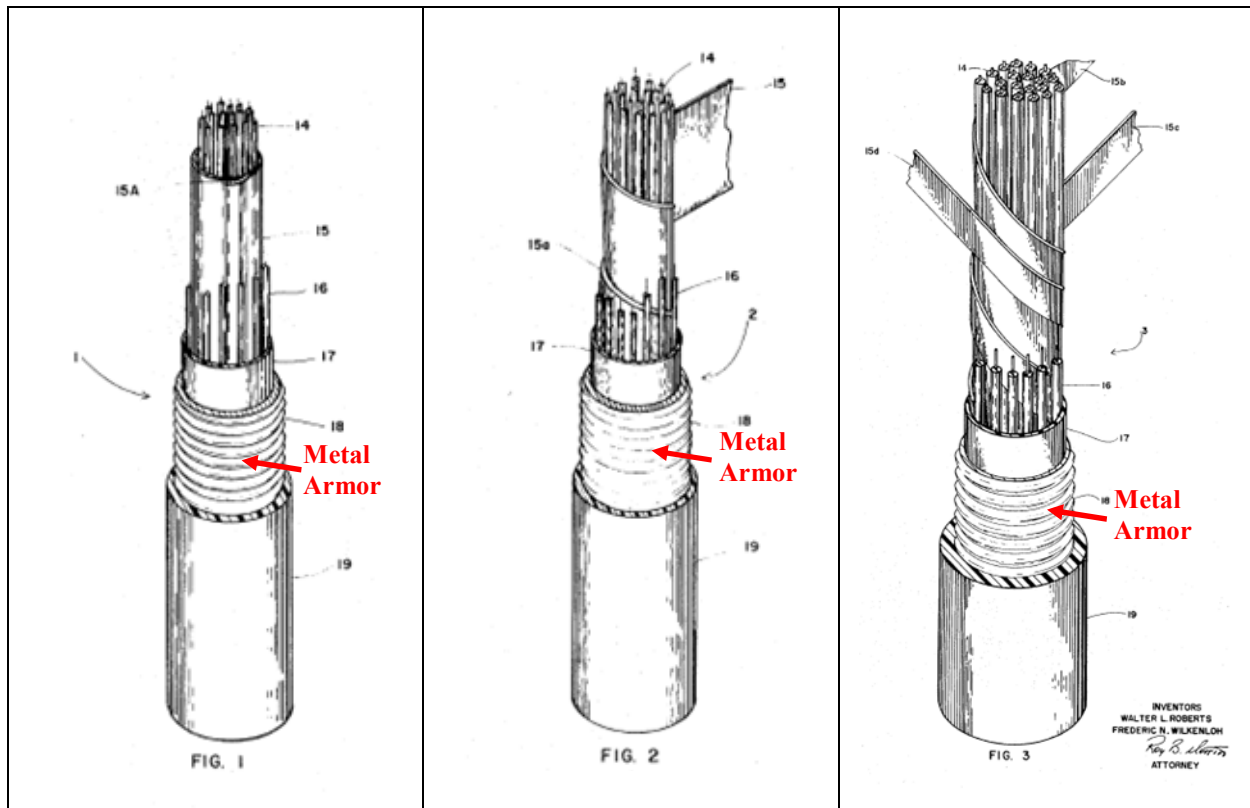




In arguing that Roberts discloses the claimed barrier tape, Petitioner relied upon the embodiment of a cable 24 shown in FIG. 17 and annotated by Petitioner, as shown below. Pet. 58; Eldering ¶76.



As shown, Petitioner alleged that Roberts' disclosure in FIG. 17 of metal shield 18 (which is described in Roberts as "metal *armor* shield," "metal *armor* tape," "armor") discloses the claimed barrier tape. Pet. 57-58; Roberts 4:15-22 ("corrugated metal *armor* tape shown at (18)," "metal *armor*," "armor"); 10:42-48 ("metal *armor* shield (18)"), 11:43-49 ("*armor* (18)"), FIGS. 1, 2, 3, 17.). This metal *armor* shield/tape 18 provides "mechanical (*armor*) protection" to the cable. Roberts 4:62-67; Eldering ¶77.



But since Roberts admittedly does not disclose that the 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, Petitioner was forced to improperly rely upon *a completely different shield – shield 15*, which Petitioner also relied upon to disclose the claimed “filler.” Pet. 56-59. But 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. Eldering ¶78.

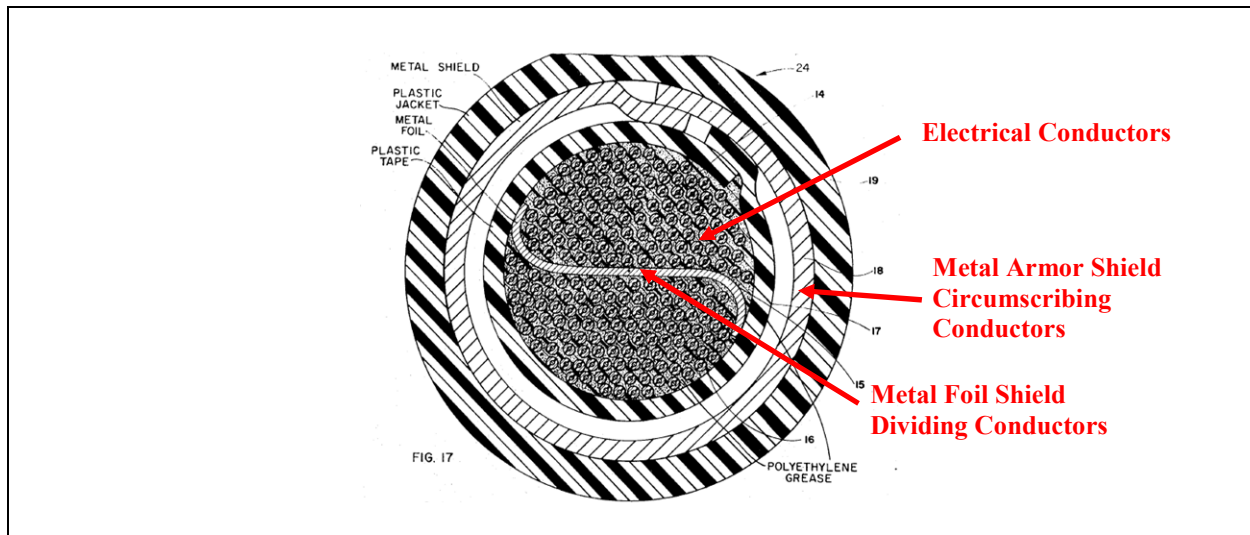
For example, Roberts’ metal armor shield 18, which provides mechanical protection to the cable, is *not a metal foil* like shield 15. Instead, it has “*a thickness greater than a foil*” to provide mechanical protection. Roberts 4:15-19. Roberts expressly discloses that metal *armor* shield 18, which provides a mechanical shield, is *different than* any of the other shields disclosed in Roberts, including metal *foil* shield 15, which provides an electrical shield and does not provide “mechanical (armor) protection,” such as follows:

For *the purposes of this disclosure, when reference is made to a shield, other than element (18), an electrical shield is meant*. Even though the word “shield” has an accepted double meaning, *i.e.* electrical as well as mechanical (armor) protection, the *metal foil shield of the instant invention connote primarily an electrical shield*.

Roberts 4:62-67; Eldering ¶79.

Roberts also expressly discloses that metal foil shield 15 in FIG. 17 divides “a plurality of insulated electrical conductors [] into essentially two groups” and “that this particular shield *does not circumscribe any one group of insulated electrical conductors (14) and (16)*.” Roberts 10:50-55, FIG. 17. In fact, the cable

24 of FIG. 17 is described in Roberts as “a cable structure showing a screen or shield *dividing groups of insulated electrical conductors that does not longitudinally circumscribe any group of conductors.*” Roberts 2:72-75. But, as shown in the annotated figure below, unlike the metal foil shield 15 that expressly does *not* circumscribe the electrical conductors 14, 16, the metal armor shield 18 does exactly that. As a result, a POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18. Eldering ¶¶80-81.



Furthermore, 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].” Roberts 11:7-12 (alteration in original). Accordingly, Roberts itself expressly teaches away from using the metal foil shield 15 as the metal armor shield 18 surrounding the

conductors. Eldering ¶82.

So while Petitioner alleged that metal foil shield 15 discloses a metal layer that is continuous and has lateral edges flush with the edges of the dielectric layers, the specification of Roberts expressly contradicts and teaches away from Petitioner’s further unsupported and conclusory, hindsight-driven allegation that a “POSITA would conclude that the disclosed metal shield 18 (with dielectric on both surfaces) would look the same” as metal shield 15. Pet. 58-59; Eldering ¶¶77-82.

Finding no support in Roberts for its proposed *anticipation* rejection, Petitioner improperly resorted to expert testimony (Cornelison ¶¶44-45, 206) and a slew of other prior art references (EX-1013, EX-1014, EX-1031 to EX-1037) to allege that “a POSITA would understand that with conventional designs, the metal armor tape 18 has a continuous metal layer sandwiched between two layers of a dielectric material and extending to the lateral edges of the dielectric material.” Pet. 59-60. But Petitioner’s reliance on evidence outside of the four corners of Roberts, and that contradicts Roberts’ express teachings, is not appropriate for its proposed Ground 5 anticipation challenge based on Roberts. *See Cont’l Can*, 948 F.2d at 1267 (“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.”).

Since 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, it cannot anticipate independent claims 1 and 18 or any of the dependent claims. Ground 5 thus should be rejected.⁸ Eldering ¶83.

IV. THE CHALLENGED CLAIMS ARE NOT OBVIOUS.

In addition to its three anticipation grounds, Petitioner included the following four obviousness grounds/combinations regarding independent claims 1 and 18 in its Petition; Ground 4 (Glew and Cook), Ground 6 (Roberts and Jachimowicz-172), Ground 7 (Roberts and Jackimowitz-036), and Ground 10 (Clark, Roberts, and Glew).

In doing so, Petitioner's blatantly resorted to picking and choosing elements from the prior art to meet the limitations of the claims. That is a classic and improper

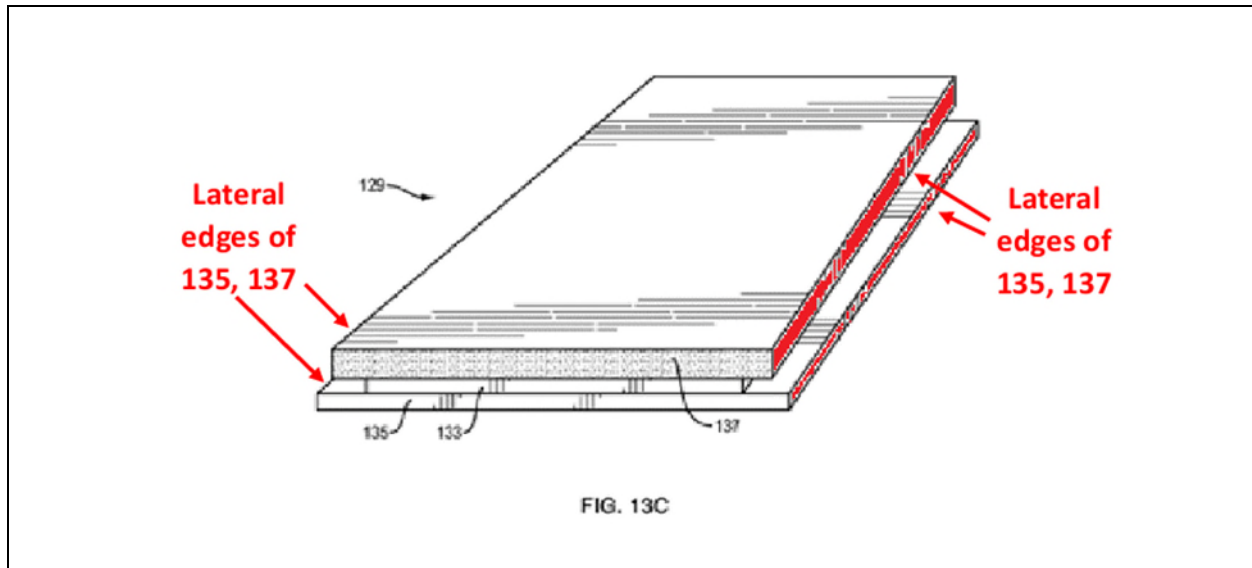
⁸ Grounds 8 and 9 allege that dependent claims 11 (Ground 8) and claims 9 and 12 (Ground 9) respectively, all of which depend from independent claim 1, are rendered obvious by the combinations of Roberts and Glew (Ground 8) and Roberts and Simons (Ground 9). Pet. 75-81. Since these grounds only address 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. Eldering ¶84.

case “of hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit,” which must be avoided. *In re NTP, Inc.*, 654 F.3d 1279, 1299 (Fed. Cir. 2011); *see also Grain Processing Corp. v. Am. Maize Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988) (same).

The Federal Circuit has long “rejected obviousness determinations based on conclusory and unsupported expert testimony ... [that] use[d] the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—*i.e.*, the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.” *TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019) (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418, 421 (2007)); *see also In re Mettke*, 570 F.3d 1356, 1360 (Fed. Cir. 2009) (recognizing that a patent should not be used as a blueprint for the combination of elements from various sources); *Ecolochem, Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1371-72 (Fed. Cir. 2000) (“Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight.”) (quoting *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999).) The Board should do the same here and reject all of Petitioner’s hindsight-driven obviousness grounds.

A. Regarding Ground 4, Neither Glew Alone, Nor In Combination With Cook, Renders Obvious Any Of The Challenged Claims.

As explained above in Ground 3 and as demonstrated in Petitioner's own annotated figure below, Glew cannot anticipate independent claims 1 and 18 because it does not disclose a barrier tape with conductive material (133) that extends to each lateral edge of the two layers of the dielectric material (135, 137). Eldering ¶¶56-73, 85.



Pet. 49.

Recognizing the problems with its proposed anticipation rejection based on Glew, Petitioner alternatively speculated that it would have been obvious based on Glew alone to extend the conductive metal foil layer 133 to the lateral edges of the dielectric layers 135, 137. Pet. 49-51. In doing so, Petitioner repeated its flawed anticipation theory that “at the time of the ’030 patent filing date the common

method of making multi-layer tapes, such as disclosed in Glew, was [a] process [that] results in all three layers having side edges flush with each other.” Pet. 50. But this theory that a POSITA “could” have made the multi-layer tape with flush edges fails to establish that it “would” have been obvious to do so. Eldering ¶¶86-87. It is well settled that “mere capability” to modify the prior art to meet the claim limitations is not sufficient to establish obviousness. *See, e.g., Ex parte Gerlach*, 212 USPQ 471, 471 (PTAB 1980); *see also Polaris Indus. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1068-69 (Fed. Cir. 2018) (vacating Board’s obviousness determination since “the Board focused on what a skilled artisan would have been *able* to do, rather than what a skilled artisan would have been *motivated* to do at the time of the invention.”) (emphasis in original)); *Apple Inc. v. MPH Techs. Oy*, 28 F.4th 254, 262-63 (Fed. Cir. 2022) (affirming Board’s rejection of petitioner’s technical expert’s testimony on motivation to combine that “amounted to an argument about ‘what *could* be combined’ and a conclusory statement that the combination would have been obvious.”) (emphasis in original).

Petitioner also repeated its flawed theory that modifying Glew to provide flush edges somehow would have been obvious based on the speculative notion that Glew does not discuss the advantages of having edges that are not aligned as actually shown in its figures. Pet. 50-51. But there is no factual or legal support for such an unsupported and speculative theory (*i.e.*, that Glew may not discuss the advantages

of edges that are not aligned does not change the fact that is what Glew expressly discloses). In fact, the evidentiary record, Petitioner's own prior art reference Roberts, confirms that Glew's design in FIG. 13C where the edges of the conductive material did not extend to the lateral edges of the dielectric layers (*i.e.*, a "foil free edge" design) had significant advantages that would be lost if it were modified as suggested by Petitioner. Eldering ¶88.

As Roberts teaches, there were *disadvantages* (*i.e.*, "undesirable electrical properties") to creating a shield, where the edge of the metal foil is exposed as it would be if it extended to the lateral edges of the dielectric layers as claimed in the '030 Patent:

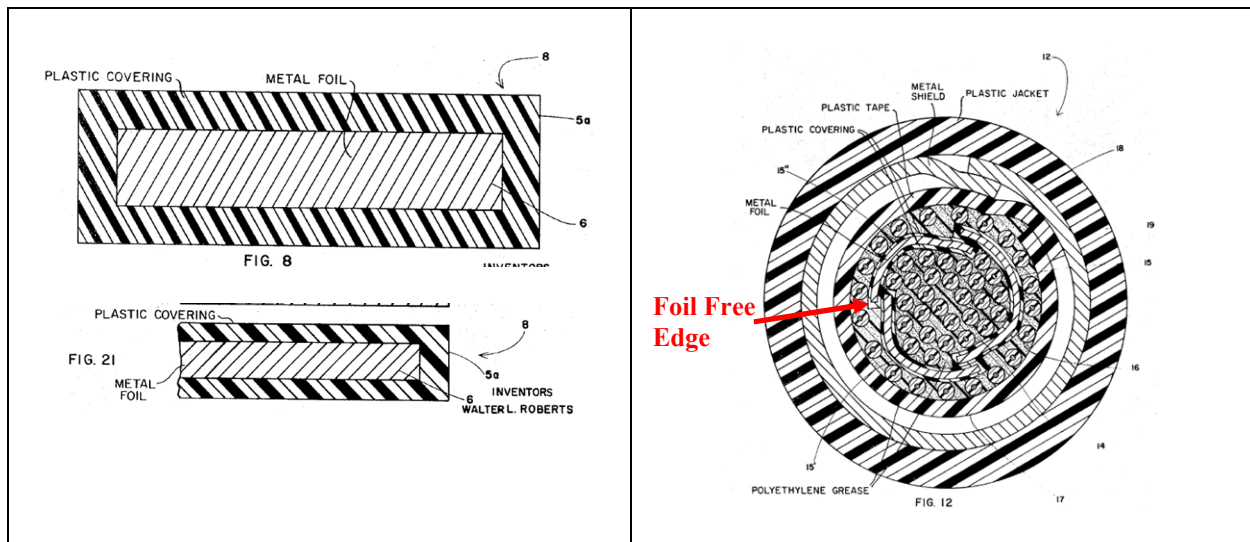
It is also an embodiment of the instant invention to employ as *a shield, a metal foil which is completely surrounded on all sides by a plastic coating*, *e.g.*, an aluminum foil, completely surrounded by polyethylene teraphthalate (Mylar), polyethylene, polypropylene, polystyrene or PVC. *An aluminum foil, which is coated only on its two major surfaces with a plastic, still has exposed naked aluminum surfaces at the edges thereof. When considering a cable of many miles in length, this amount of exposed conductive metal becomes significant.* Therefore, the instant invention takes this into account in one of two ways: the first way is to employ a metal foil which is completely surrounded by plastic. As an example, such a foil would be envisioned as being aluminum with the plastic covering being polyethylene teraphthalate (Mylar). Another way to mitigate *undesirable electrical properties created by having an exposed surface (edge) of metal to the electrical conductors* is to fill that portion of the space created by the plastic-coated metal foil shield not otherwise occupied by the electrical conductors therein with a polyethylene greaselike material. This greaselike material acts as both a dielectric protection, as well as an inhibitor of any subsequent incoming moisture.

Roberts 3:52-74; Eldering ¶89.

Element (9) of FIG. 9, shows a cross-sectional view of that cable structure as depicted in FIG. 1. Like numbers of FIG. 1 also represent like elements in FIG. 9. Here it will be noted that the plastic-coated metal foil shield (15) is coated on its two major surfaces with a plastic; *however, it can be seen by element (20), that thin strips of uninsulated metal are exposed to the first and second group of electrical conductors (14) and (16) respectively. It is quite obvious that pinholes in the electrical insulation of the insulated electrical conductors (14) or (16), or the shield (15), would allow unwanted electrical energy to reach exposed portions (edges) of the aluminum foil shield, through the edges (20) or pinholes in its plastic coating. From an electrical standpoint, it is desirable to avoid this.* It is also electrically desirable to keep moisture away from the electrical conductors. *Thus, the instant invention envisions an embodiment in which a polyethylene greaselike material (a flooding compound) is disposed in that cavity created or defined by the foil shield (15) not otherwise occupied by insulated electrical conductors (14).* Furthermore, it is also envisioned that the same polyethylene greaselike material can be disposed in that cavity created by the plastic-coated metal foil shield (15) and plastic tape (17) not otherwise occupied by the insulated electrical conductors (16).

Roberts 4:68-5:15, 5:48-54, 6:15-28, FIGS. 9 & 10; Eldering ¶89.

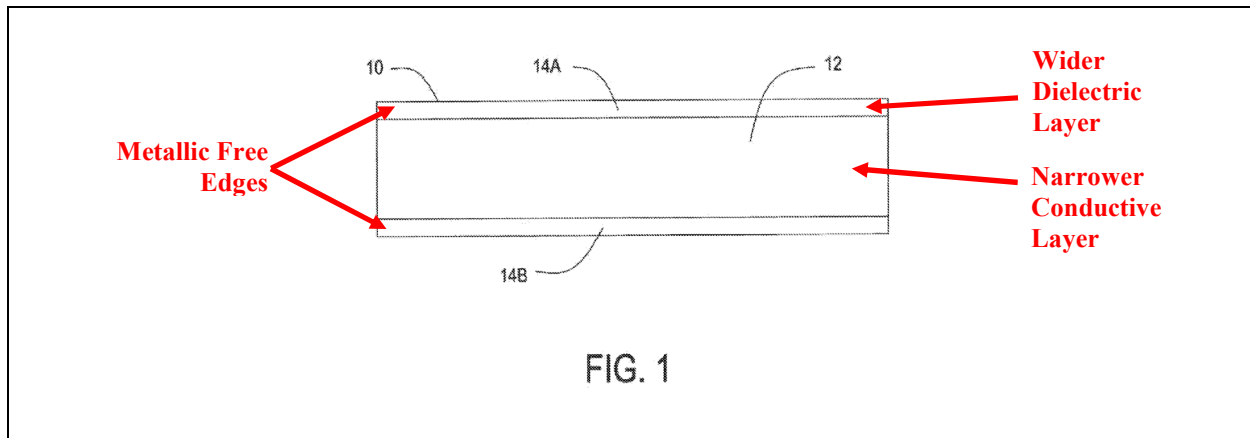
So to avoid the disadvantages caused by these conductive edges, Roberts discloses in FIGS. 8 and 21 a “metal foil shield [8] having a plastic coating that completely surrounds said foil” and covers the conductive edges. Roberts 2:37-38, 2:47-53, 3:1-7, 6:29-65, 6:66-7:25, FIGS. 8, 11, 12, 14, 16, 21; Eldering ¶90.



In fact, Petitioner and its expert elsewhere in the Petition admitted that “POSITAs have been *motivated to isolate the conductors from the metal layer of a shield since at least the 1960s, as exemplified by Roberts*, which discloses adding mylar and also a grease-like dielectric material to cables to help isolate the conductors from the metal layer in multi-layer shields.” Pet. 84 (citing Roberts 3:37-75, 4:48-5:15); Cornelison ¶291. Accordingly, a POSITA would be discouraged from Petitioner’s proposed speculative and unsupported modification of Glew’s actual teachings and design theory (*i.e.*, to create edges where the conductive foil was exposed). Eldering ¶91.

Yet another reference filed around the priority date of the ’030 Patent confirms that there were known advantages to having the conductive layer be narrower than the dielectric layer(s) as disclosed in Glew. In FIG. 1 of U.S. Patent Application Publication No. 2016/0037691 (“Kroushl”) (EX-2007), “a first polyester substrate

tape 10 is provided having a laminated metallic surface 12 thereon.... The associated metal layer 12 deposited thereon is an *aluminum layer ... approximately 0.25” narrower* than the width of tape 10.” Kroushl ¶¶[0017], [0023]; Eldering ¶92.



Having the tape or dielectric layer wider than the conductive layer provides “two metallic free segments 14a and 14b on each side of metallic layer 12 running the length of tape 10.” Kroushl ¶[0024], Abstract, ¶[0012], [0014]. The “advantage of metallic free zones 14a and 14b is that they can help prevent the unintentional shorting of adjacent metallic segments 16 when the tape is applied around the cable core.” Kroushl ¶[0028]; Eldering ¶93-94.

Data sheets of NEPTAPE® Foil Free Edge Shielding Tapes available in 2000 provide additional compelling evidence of the advantages of a shield having foil free edges as shown in Glew. For example, the foil free edge tapes “offer a film/film/foil construction with a wider, thicker top film layer which overlaps the foil, providing *non-conductive foil free edges.*” EX-2008 1; EX-2009 (“Three ply tape with a

thicker film layer which overlaps the foil”). These foil free edge shielding tapes were to be used for “[s]hielding of twisted pairs in multi-pair cables such as process control, computer, or instrumentation cables.” EX-2008 1. The “[f]oil free film edge provides isolation between pairs, *preventing shield to shield shorts* and eliminating the need for a polyester overwrap.” EX-2008 1; Eldering ¶¶95-97.

To support an obviousness finding, the proposed modification must be “desirable,” not merely “feasible.” *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000). When determining whether a POSITA would be motivated to make a proposed modification, the Federal Circuit has repeatedly instructed that “the benefits, both lost and gained, should be weighed against one another.” *Id.* at 1349 n.8 (Fed. Cir. 2000); *see also Arctic Cat Inc. v. Polaris Indus.*, 795 Fed. Appx. 827, 834 (Fed. Cir. 2019). If the primary prior art reference already teaches a solution to a problem allegedly solved by the proposed combination, “a reasonable fact finder could [find] these tradeoffs to yield an unappetizing combination.” *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2009). Here, since Petitioner’s proposed Glew modification theory (*i.e.*, extending the conductive metal foil layer 133 to the lateral edges of the dielectric layers 133, 135 and exposing the metal foil 133) would result in undesirable electrical properties and possible shorting of electrical shields, a POSITA would not be motivated to make such a modification. Eldering ¶98.

Petitioner also speculated in conclusory fashion that the manufacturing of the tape 129 shown in FIG. 13C “would take much more time and be more complex and costly to make than using the customary slitting process.” Pet. 50-51, 53-54. To try to support such speculation, Petitioner only cited to its expert’s testimony (Cornelison ¶¶178, 186), which “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support.” *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (Aug. 24, 2022) (precedential) (“Dr. Jones does not cite to any additional supporting evidence or provide any technical reasoning to support his statement. Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.”). “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must 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). Accordingly, “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *see also TQ Delta*, 942 F.3d at 1357 (reversing Board’s obviousness determinations since “its factfinding... is based on conclusory [expert] testimony”). Since Petitioner offers no evidentiary support for

its speculative theory beyond the conclusory and *verbatim* testimony of its expert, it should be rejected out of hand. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); Eldering ¶¶99.

Petitioner’s alternative obviousness arguments based on the combination of Glew and Cook (Pet. 51-54) must also be rejected for the same reasons as its Glew-alone obviousness arguments. For example, Petitioner speculated that “Cook thus demonstrates that it is ***well-known*** for multi-layer tapes to have the metal layer side edges flush/aligned with the dielectric layer edges,” and cited to two additional prior art references (EX-1037 and EX-1038). Pet at 52-53; Eldering ¶¶100-101.

As an initial matter, as explained in Ground 1 above, Cook does not disclose any shield layer (or barrier tape) with conductive material contained between two layers of a dielectric material and extending to each lateral edge of the two layers of the dielectric material. So 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. Eldering ¶¶34-55, 102. Furthermore, an invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418 (An invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.”); *see also In re*

Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (“If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.”); *Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“[I]t is not enough for Toro to merely demonstrate that elements of the claimed invention were independently known in the prior art. Often, every element of a claimed invention can be found in the prior art.”) (citing *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)); *Black & Decker, Inc. v. Positec USA, Inc.*, 646 Fed. Appx. 1019, 1027 (Fed. Cir. 2016) (“[W]hat one of skill in the art ‘would have known’ or ‘could have’ done to meet the limitation . . . is not sufficient” to show that the claimed limitation was obvious.) (nonprecentential).

Petitioner’s and its expert’s *verbatim* laundry list of boilerplate obviousness rationales (*i.e.*, “combination of familiar elements according to known methods to yield predictable results,” “rearrangement of old elements with each performing the same function it had known to perform,” “a reasonable expectation that [the modification] would be successful”) (Pet. 52; Cornelison ¶¶184-186) without any evidentiary support are equally unavailing. For example, Petitioner’s conclusory theory that a “POSITA would have 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” is directly contradicted by the evidence presented above that extending the metal layer to the alter edges would

lead to several disadvantages. Eldering ¶¶88-98.

Accordingly, since neither Glew alone or the combination of Glew and Cook render obvious any of the Challenged Claims, Ground 4 should be rejected. Eldering ¶103.

B. Regarding Ground 6, the Combination Of Roberts and Jachimowicz-172 Does Not Render Obvious Any Of The Challenged Claims.

As explained above regarding Ground 5, Roberts cannot anticipate independent claims 1 and 18 (or any of the dependent claims) because it 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 (claim elements [1D], [18C-1], and [18C-2]). Eldering ¶¶74-83, 104.

Regarding Ground 6, Petitioner alternatively speculated that the combination of Roberts and Jachimowicz-172 should render obvious independent claims 1 and 18 and several dependent claims. Pet. 68-70. But this 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 (claim elements [1D], [18C-1], and [18C-2]). Eldering ¶105.

To establish a *prima facie* case of obviousness, Petitioner has the “burden to

prove that *all claimed limitations* are disclosed in the prior art.” *Par Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014). This is because courts “consider motivation to combine and reasonable expectation of success only if all the elements of an invention are found in a combination of prior art references.” *Id.* Since, exactly like anticipation Ground 5, obviousness Ground 6 relies exclusively on Roberts (and not Jachimowicz-172) as allegedly disclosing 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 (claim elements [1D], [18C-1], and [18C-2]), it fails for the same reasons as Ground 5 and should be rejected. Eldering ¶105.

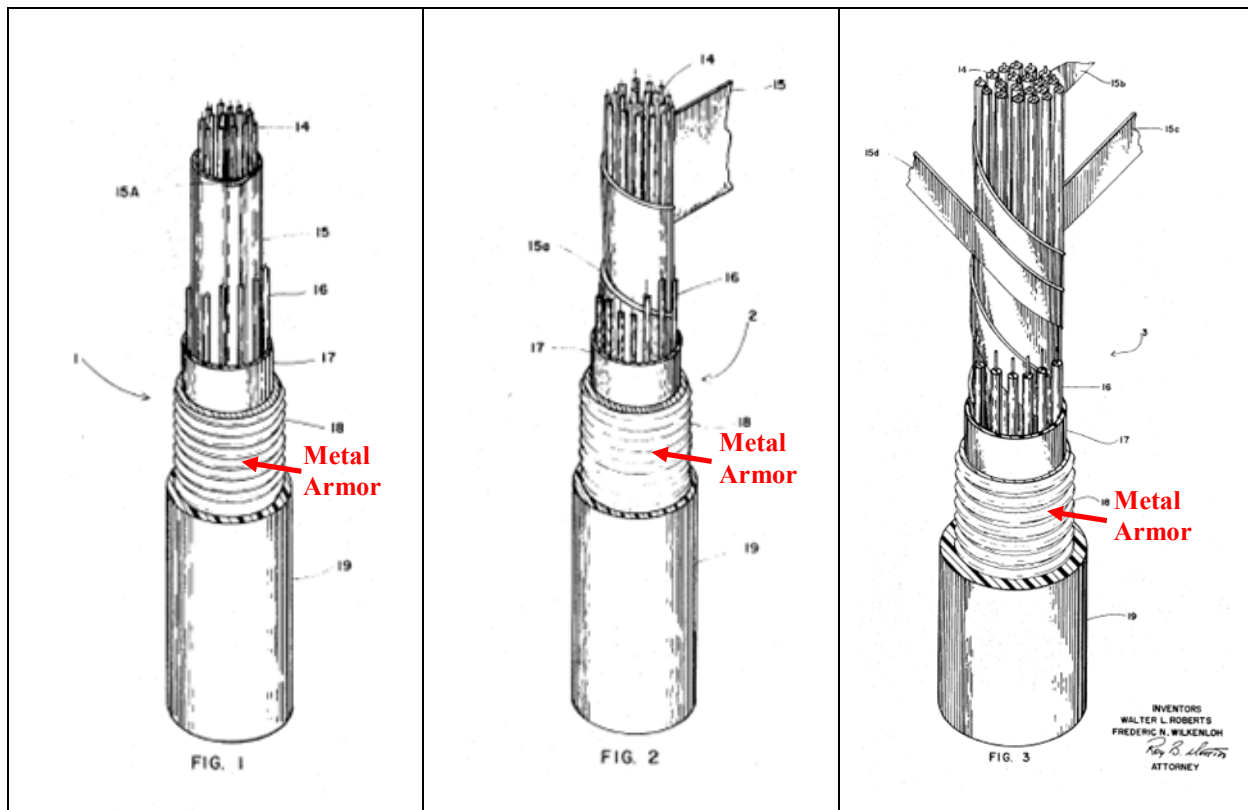
C. Regarding Ground 7, The Combination Of Roberts And Jachimowicz-036 Does Not Render Obvious Any Of The Challenged Claims.

As explained above regarding Ground 5, Roberts cannot anticipate independent claims 1 and 18 (or any of the dependent claims) because Roberts’ metal armor shield 18 does not disclose a barrier tape with conductive material that extends to each lateral edge of the two layers of the dielectric material and surrounds the first and second twisted pairs of insulated conductors and the filler (claim elements [1D], [18C-1], and [18C-2]). Eldering ¶¶74-83, 106.

Recognizing the problem with its proposed Roberts’ anticipation theory, Petitioner alternatively alleged that it would have been obvious based on Roberts

alone to use the configuration of the metal foil shield 5 shown in FIG. 5 of Roberts for the metal armor shield 18. Pet. 71-73. But this is nothing more than a repeat of Petitioner's deficient Ground 5 anticipation theory. Pet. 58-59 ("A POSITA would conclude that the disclosed metal shield 18 (with dielectric on both surfaces) would look the same" as the shield shown in FIG. 5). Eldering ¶107.

As explained above in Ground 5, metal shield 18 (which is described in Roberts as "metal *armor* shield," "metal *armor* tape," "*armor*") as allegedly disclosing the claimed barrier tape. Pet. 57-58; Roberts 4:15-22 ("corrugated metal *armor* tape shown at (18)," "metal *armor*," "*armor*"); 10:42-48 ("metal *armor* shield (18)"), 11:43-49 ("*armor* (18)"), FIGS. 1, 2, 3, 17.) This metal *armor* shield/tape 18 provides "mechanical (*armor*) protection" to the cable. Roberts 4:62-67; Eldering ¶¶108-109.

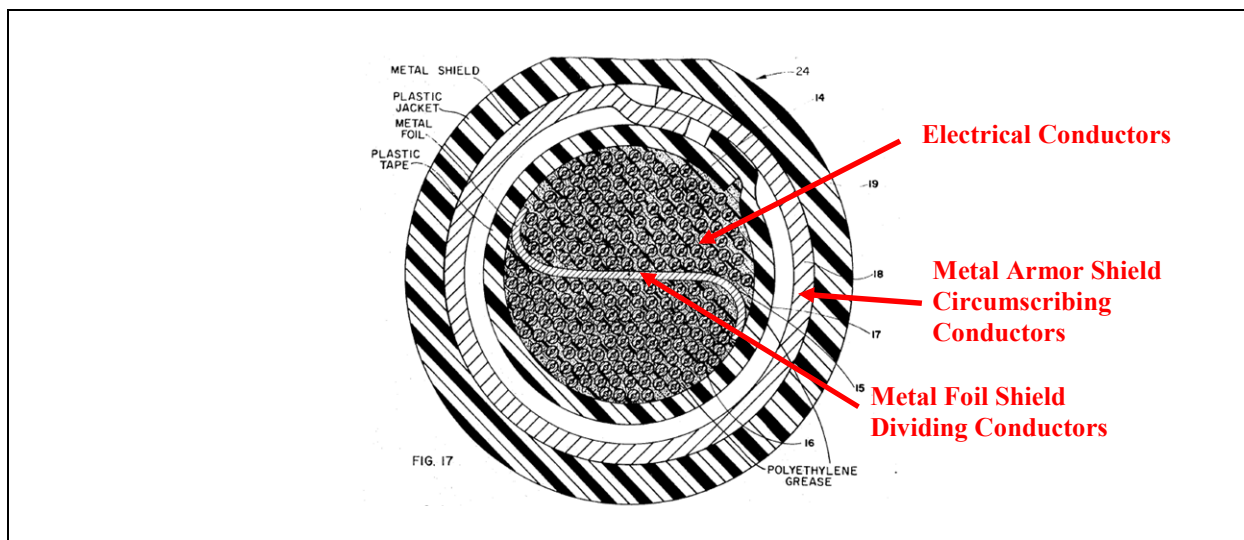


On the other hand, Roberts discloses that shield 15, which can be configured as the tape 5 shown in FIG. 5 (or any of the other tapes shown FIGS. 6-8), is a thin ***metal foil shield*** in all of the embodiments in Roberts, and not a ***metal armor shield*** 18. For example, Roberts' metal armor shield 18, which provides mechanical protection to the cable, is ***not a metal foil*** like shield 15, but instead has ***“a thickness greater than a foil”*** to provide mechanical protection. Roberts 4:15-19. Roberts expressly discloses that metal ***armor*** shield 18, which provides a mechanical shield, is different than any of the other shields disclosed in Roberts, including metal ***foil*** shield 15, which provides an electrical shield and does not provide “mechanical (armor) protection as follows:

For the purposes of this disclosure, when reference is made to a shield, other than element (18), an electrical shield is meant. Even though the word “shield” has an accepted double meaning, *i.e.* electrical as well as mechanical (armor) protection, the ***metal foil shield of the instant invention connote primarily an electrical shield.***

Roberts 4:62-67; Eldering ¶110.

Roberts also expressly discloses that metal foil shield 15 in FIG. 17 divides “a plurality of insulated electrical conductors [] into essentially two groups” and “that this particular shield ***does not*** circumscribe ***any one group of insulated electrical conductors (14) and (16).***” Roberts 10:50-55, FIG. 17. In fact, the cable 24 of FIG. 17 is described in Roberts as “a cable structure showing a screen or shield ***dividing groups of insulated electrical conductors that does not longitudinally circumscribe any group of conductors.***” Roberts 2:72-75. But, as shown in the annotated figure below, unlike the metal foil shield 15 that expressly does not circumscribe the electrical conductors 14, 16, the metal armor shield 18 does exactly that. Thus a POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18. Eldering ¶¶111-112.



Furthermore, 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].” Roberts 11:7-12 (alteration in original). Accordingly, Roberts itself expressly teaches away from using the metal foil shield 15 (as shown in FIG. 5) as the metal armor shield. Therefore, Roberts cannot render obvious any of the Challenged Claims. Eldering ¶113.

Next, Petitioner argued that “it would be obvious to use the three-layer barrier tape [shield 14] in [Jachimowicz-036] *on Roberts’ cable*.” Pet. 73. But neither Petitioner, nor its expert, ever explained *why or how* shield 14 disclosed in Jachimowicz-036 would be used “on Roberts’ cable.” Pet. 73; Cornelison ¶254. For example, Petitioner, and its expert, did not even try to explain *how* the shield 14

disclosed in Jachimowicz-036 would be used in Roberts' cable (*i.e.*, whether it would replace the metal armor shield 18 in Roberts or be used in addition to the metal armor shield 18). Nor did Petitioner even attempt to explain *why* a POSITA would be motivated to use the shield 14 disclosed in Jachimowicz-036 in Roberts. Eldering ¶114.

Petitioner's only speculative theory offered for modifying Roberts' metal armor shield 18 is that "***well-known*** multi-layer barrier tape shields⁹ had a continuous metal layer sandwiched between and extending to the lateral edges of the dielectric layers." Pet. 73-74. But, once again, an invention "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418.

⁹ Petitioner cited to several other references (EX-1031 to EX-1037) ***not identified in the proposed obviousness ground*** that allegedly disclose "well-known multi-layer barrier tape shields sold under the Zatabon trademark." Pet. 73-74. These references include EX-1031, which is directed to "Rodent Protection" rather than communications cable shielding to prevent cross-talk. Other than alleging that the shields were "well-known," Petitioner did not offer any other explanations regarding why those references, which are not even identified as part of Ground 7, render any of the Challenged Claims obvious. Eldering ¶115.

Furthermore, for the same reasons why it would not have been obvious to use Roberts' *thin* metal foil shield 15 for the metal armor shield 18 (which is designed to be thicker than the foil shield to provide mechanical protection (Roberts 4:15-19)), it also would not have been obvious to use Jachimowicz-036's foil shield 14, which is also described as being a thin foil. Jachimowicz-036 1:41-45 ("the shield ... consists of a metallic strip such as aluminum or copper. The strip is relatively *thin*."). Eldering ¶116.

Moreover, as explained regarding Ground 4, Roberts teaches away from such a modification since it expressly discloses various disadvantages of using a shield where the edge of the metal foil is exposed as it would be if it extended to the lateral edges of the dielectric layers as suggested by Petitioner. Roberts 3:52-74 ("undesirable electrical properties created by having an exposed surface (edge) of metal to the electrical conductors"), 4:68-5:15, 5:48-54, 6:15-28, FIGS. 9 & 10. In fact, Petitioner and its expert admitted that a "POSITAs have been *motivated to isolate the conductors from the metal layer of a shield since at least the 1960s, as exemplified by Roberts*, which discloses adding mylar and also a grease-like dielectric material to cables to help isolate the conductors from the metal layer in multi-layer shields." Pet. 84 (citing Roberts 3:37-75, 4:48-5:15); Cornelison ¶291; Eldering ¶¶88-97, 117-118.

Accordingly, since neither Roberts alone nor the combination of Roberts and

Jachimowicz-036 render obvious any of the Challenged Claims, Ground 7 should be rejected. Eldering ¶119.

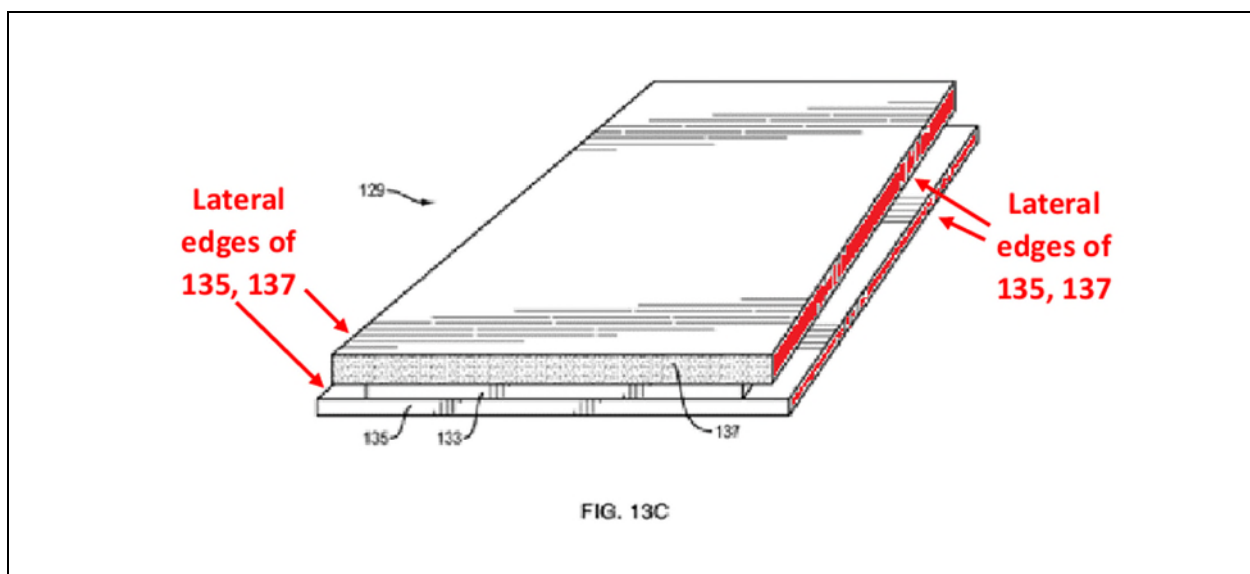
D. Regarding Ground 10, the Combination Of Clark-478, Roberts, And Glew Does Not Render Obvious Any Of The Challenged Claims.

Petitioner alleged that the combination of Clark-478 (EX-1025), Roberts, and Glew renders obvious the Challenged Claims. Pet. 81-97.

As acknowledged by Petitioner (Pet. 82-83) and explained above, the Examiner during prosecution initially rejected the independent claims as obvious over Clark-478 in view of Roberts. EX-1002 ¶12. The Examiner acknowledged that Clark-478 did not “disclose the barrier tape comprising a conductive material in-between two dielectric layers (claims 1 and 18).” EX-1002 9. Instead, like Petitioner, the Examiner relied upon Roberts’ alleged disclosure of a tape metal foil shield 15, where the tape metal foil shield 15 is a metal foil 5 as shown in FIG. 5. EX-1002 at 9-10. In response, the Applicant distinguished Roberts on the basis that Roberts’ metal foil 5 used for tape metal foil shield 15 was not “*surrounding* the first twisted pair of insulated conductors [and] the second pair of insulated conductors” as required by the claim. EX-1003 8 (emphasis and alterations in original).

Nevertheless, in Ground 10, Petitioner argued again that “[s]urrounding Clark-478’s filler and twisted pairs with Roberts’ or Glew’s three-layer tapes” would be obvious. Pet. 83. But as explained in Ground 5, 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 (claim elements [1D], [18C-1], and [18C-2]). And as explained in Ground 3 and as demonstrated in Petitioner’s own annotated figure below, 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).



Pet. 49; Eldering ¶¶66-73, 78-83, 121-123.

Petitioner does not and cannot rely upon Clark-478 to remedy the fact that neither Roberts, nor Glew, disclose or suggest these missing claim elements. In fact, Petitioner admitted that Clark-478 does not even disclose a “barrier tape having three layers, with a conductive material contained between two layers of a dielectric material.” Pet. 82; Eldering ¶124.

Returning to Petitioner’s argument that “[s]urrounding Clark-478’s filler and

twisted pairs with Roberts’ or Glew’s three-layer tapes” would be obvious (Pet. 83), since Glew’s three-layer tape does not disclose a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, the proposed combination with Clark-478 would also lack that claim element. Similarly, Petitioner’s reliance on Roberts’ metal armor shield 18, which as explained in Ground 5, is not a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, the proposed combination with Clark-478 would also lack that claim element. Eldering ¶¶124-125.

Furthermore, 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 (*i.e.*, exposing the metal layer). According to Petitioner, “POSITAs have been *motivated to isolate the conductors from the metal layer of a shield since at least the 1960s, as exemplified by Roberts*, which discloses adding mylar and also a grease-like dielectric material to cables to help isolate the conductors from the metal layer in multi-layer shields.” Pet. 84 (citing Roberts 3:37-75, 4:48-5:15, Cornelison ¶291). Under Petitioner’s theory then, 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. Eldering ¶126.

Accordingly, since the combination of Clark-478, Roberts, and Glew does not render obvious any of the Challenged Claims, Ground 10 should be rejected.¹⁰ Elderling ¶127.

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Respectfully submitted,

/Denis J. Sullivan/

Denis J. Sullivan (Reg. No. 47,980)

Thomas Hoehner (Reg. No. 73,474)

Pranav Katti (Reg. No. 78,713)

BARCLAY DAMON, LLP

Email: dsullivan@barclaydamon.com

Email: thoehner@barclaydamon.com

Email: pkatti@barclaydamon.com

Cory C. Bell (Reg. No. 75,096)

FINNEGAN, HENDERSON, FARABOW,

GARRETT, & DUNNER LLP

Email: cory.bell@finnegan.com

Attorneys for Patent Owner Belden, Inc.

¹⁰ Ground 11 alleges that dependent claims 3 & 9, which depend from independent claim 1, are rendered obvious by the combination of Glew and/or Roberts and/or Cook. Pet. 97. 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. Elderling ¶128.

CERTIFICATION OF COMPLIANCE WITH WORD COUNT

The undersigned hereby certifies that the foregoing Patent Owner Preliminary Response complies with the requirements of 37 C.F.R. § 42.24 and contains less than 14,000 words (10,768 words), excluding those contained in the following: Table of Contents, Table of Authorities, Grounds of Standing, Mandatory Notices, Certification of Compliance with Word Count, Certificate of Service, and the Exhibit List.

/Denis J. Sullivan /

Denis J. Sullivan (Reg. No. 47,980)
Thomas Hoehner (Reg. No. 73,474)
Pranav Katti (Reg. No. 78,713)
BARCLAY DAMON, LLP
Email: dsullivan@barclaydamon.com
Email: thoehner@barclaydamon.com
Email: pkatti@barclaydamon.com

Cory C. Bell (Reg. No. 75,096)
FINNEGAN, HENDERSON, FARABOW,
GARRETT, & DUNNER LLP
Email: cory.bell@finnegan.com

Attorneys for Patent Owner Belden, Inc.

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **PATENT OWNER PRELIMINARY RESPONSE** was served pursuant to 37 C.F.R. § 42.6(e) via electronic mail on September 20, 2023, on the following:

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

/Denis J. Sullivan /

Denis J. Sullivan (Reg. No. 47,980)
Thomas Hoehner (Reg. No. 73,474)
Pranav Katti (Reg. No. 78,713)
BARCLAY DAMON, LLP
Email: dsullivan@barclaydamon.com
Email: thoehner@barclaydamon.com
Email: pkatti@barclaydamon.com

Cory C. Bell (Reg. No. 75,096)
FINNEGAN, HENDERSON, FARABOW,
GARRETT, & DUNNER LLP
Email: cory.bell@finnegan.com

Attorneys for Patent Owner Belden, Inc.