

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN INC.,
Patent Owner.

Case No. IPR2023-01062
Patent 6,570,095 B2

PATENT OWNER PRELIMINARY RESPONSE

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EXHIBIT LIST

EXHIBIT	DESCRIPTION
EX-1001	U.S. Patent No. 6,570,095 (the “’095 patent”)
EX-1002	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: Nov. 8, 2002 Notice of Allowance
EX-1003	Excerpt of Inter Partes Reexamination No. 95/000,474 of U.S. Patent No. 6,570,095: Sept. 20, 2011 Action Closing Prosecution
EX-1004	U.S. Patent No. 6,998,537 (the “’537 patent”)
EX-1005	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Nov. 2, 2004 Notice of Allowance
EX-1006	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Sept. 20, 2011 Action Closing Prosecution
EX-1007	Declaration of Kenneth Cornelison
EX-1008	Curriculum Vitae of Kenneth Cornelison
EX-1009	U.S. Patent No. 3,622,683 (“Roberts”)
EX-1010	English language translation of German Patent No. 297,19,866 U1 (“GmbH-866”), and attached Declaration of translator Anthea Heyes
EX-1011	German Patent No. 297,19,866 U1 (untranslated original)
EX-1012	English language translation of Japanese Patent Publication S43015470 (“Yanagida”), and attached Declaration of translator Anthea Heyes
EX-1013	U.S. Patent No. 5,670,748 (“Gingue”)
EX-1014	U.S. Patent No. 3,894,172 (“Jachimowicz”)
EX-1015	U.S. Patent No. 4,755,629 (“Beggs”)
EX-1016	Electronic Wire & Cable - A Users’ Guide: Performance and Selection, Section 5: Multiconductor Cables, AT&T (1987)
EX-1017	Whitham D. Reeve, Subscriber Loop Signaling and Transmission Handbook – Digital, IEEE Telecommunications Handbook Series (1995)
EX-1018	Whitham D. Reeve, Subscriber Loop Signaling and Transmission Handbook – Analog, IEEE Telecommunications Handbook Series (1992)
EX-1019	U.S. Patent No. 5,380,591
EX-1020	U.S. Patent No. 1,727,972
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EX-1023	Canadian Patent Application No. 2,058,046
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EX-1025	U.S. Patent Pub. No. 2006/0169478
EX-1026	U.S. Patent No. 4,253,890
EX-1027	U.S. Patent No. 5,283,390
EX-1028	U.S. Patent No. 5,969,295
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EX-1030	The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th ed. 1993)
EX-1031	Neil Sclater and John Markus, Electronics Dictionary, McGraw-Hill (6th ed. 1997)
EX-1032	S. Yonechi et al., Application of Spacer Forming Technique to Communication Cables, International Wire & Cable Symposium Proceedings (1980)
EX-1033	U.S. Patent No. 7,179,999 (the “’999 patent”)
EX-1034	Excerpt of Inter Partes Reexamination No. 95/000,475 of U.S. Patent No. 7,179,999: Oct. 14, 2011 Action Closing Prosecution
EX-1035	Alcatel Cable Systems Product Catalog
EX-1036	U.S. Patent No. 5,789,711
EX-1037	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: Oct. 22, 2001 Non-Final Office Action
EX-1038	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: April 3, 2002 Final Office Action
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EX-1044	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Sept. 9, 2005 Amendment
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EX-1046	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceedings
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EX-1051	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Jan. 22, 2010 Third Party Requester's Comments to Patent Owner's Response
EX-1052	Belden Techs. et al. v. Superior Essex Comm'cns LP et al., No. 08-63-SLR, Dkt. 215 (D. Del. Aug. 8, 2010) – Claim Construction Order
EX-1053	Belden Inc. v. CommScope, Inc. et al., No. 22-783-RGA, Dkt. 292 (D. Del. May 26, 2023) – Scheduling Order
EX-1054	Declaration of Sylvia D. Hall-Ellis, PhD
EX-1055	English Translation of Japanese Patent Publication No. S43-15470 used in prior reexamination of US 6,998,537
EX-1056	Japanese Patent Publication No. S43-15470 (untranslated original)
EX-1057	English language translation of German Patent No. 297,19,866 U1 used in prior reexamination of US 6,998,537
EX-2001	Declaration of Dr. Charles A. Eldering in Support of Patent Owner Preliminary Response (“Eldering”)
EX-2002	Definition of “twisted pair” from Webster's New World Telecom Dictionary, 2008

I. INTRODUCTION

Patent Owner respectfully submits this Preliminary Response to the Petition for *Inter Partes* Review (“IPR”) of claims 27-33 (“Challenged Claims”) of U.S. Patent No. 6,570,095 (“’095 Patent”) (EX-1001). The Petition is facially deficient and should be denied for several reasons.

First, Petitioner appears to have strategically chosen to try to game the IPR process by selectively not offering any construction for the critical and admittedly disputed “twisted pair[s]” claim term, and its associated claim limitations, even though they appear over twenty (20) times in the Challenged Claims. Apparently, Petitioner chose to disregard its obligation under this Board’s rules to construe the Challenged Claims in the Petition because none of Petitioner’s prior art references that it chose to rely upon in its anticipation grounds (Grounds 1, 3, and 7) disclose or suggest such claim limitations, as properly construed. Petitioner’s failure to comply with the Board’s rules in its Petition alone warrants denial of institution.

Second, Petitioner’s alleged anticipation arguments (Grounds 1, 3, and 7) invite factual and legal error because they fail to establish that each of the asserted references disclose or suggest each and every limitation of the Challenged Claims of the ’095 Patent (including separating “twisted pairs”), and thus cannot satisfy the requirements for anticipation based on longstanding and fundamental principles of patent law. Instead of pointing to any actual disclosure or suggestion in each of these

references, Petitioner relied upon unsupported conjecture and demonstrably false characterizations of what these references actually teach.

Third, several of Petitioner's obviousness grounds (Grounds 2, 4, 6, and 8) also invite factual and legal error because they repeat the same arguments presented regarding the corresponding anticipation ground for elements in the primary reference. In doing so, Petitioner relied upon the same exact disclosures in the primary references that failed to disclose or anticipate various elements in independent claim 27 to try to show that substantively identical claim elements in independent claim 31 were obvious, without relying on any secondary references or even attempting to explain why the missing claim limitations could have been obvious. Nor did Petitioner even attempt to propose any further substitution or modification or describe why a person of ordinary skill in the art at the time of the claimed invention (POSITA)¹ would have been motivated to make a substitution or modification in order to try to overcome the deficiencies of the relied upon

¹ All references to a POSITA herein refer to a "person of ordinary skill in the art" at the time of the claimed invention. Eldering ¶¶23-27. "Eldering" refers to the Declaration of Dr. Charles A. Eldering in Support of Patent Owner Preliminary Response (EX-2001). Any differences between the parties' proposed definitions of a POSITA are insubstantial and do not impact the analysis of the issues presented.

references, taken alone or in combination, in any way. Accordingly, each of these obviousness grounds must fail for the same reasons as the corresponding anticipation arguments must fail.

Fourth, Petitioner further invited factual and legal error by failing to provide any legitimate basis for why a POSITA would have been motivated to modify the primary reference to make the alleged substitution to try to support the only obviousness ground for which the Petition even tried to remedy a flawed anticipation argument (Ground 5).

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 '095 PATENT

The inventions of the '095 Patent are generally directed to:

high-speed data communications cables using at least two ***twisted pairs*** of insulated conductors. More particularly, the invention relates to high-speed data communications cables having a light weight, configurable core-refilling isolation pair separator that provides geometrical ***separation between the twisted pairs of insulated conductors.***"²

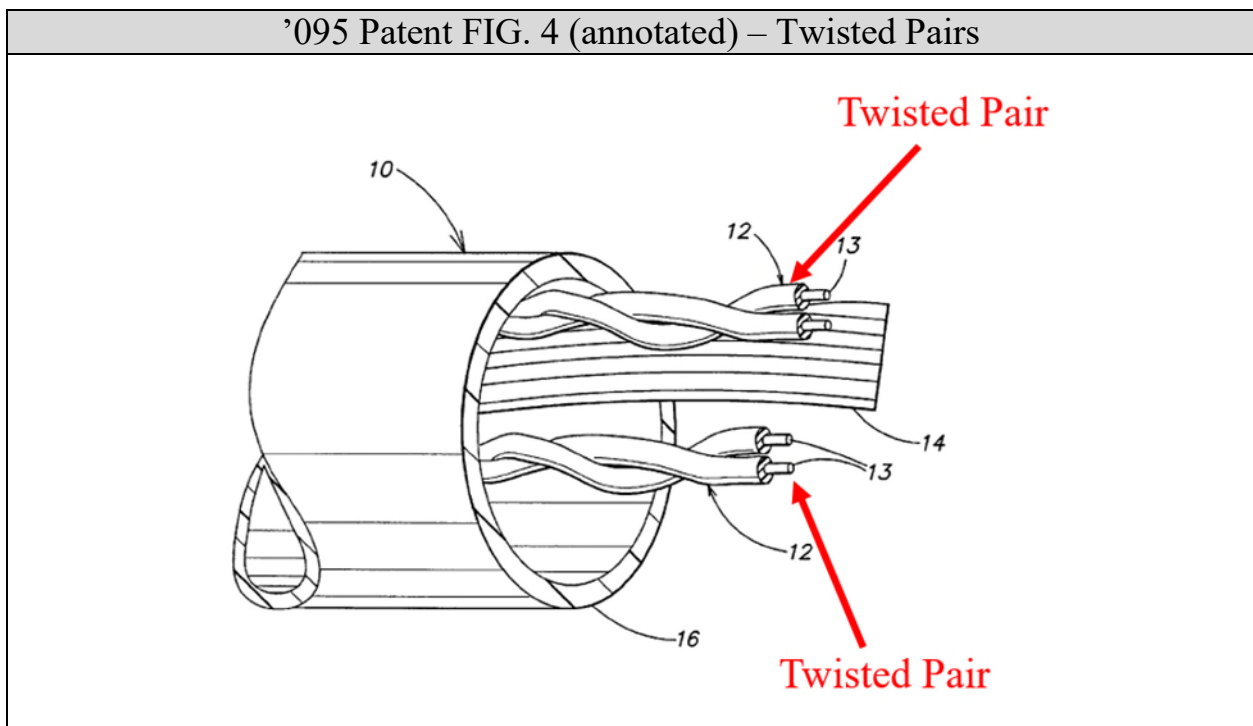
'095 Patent 1:14-21; Eldering ¶29.

The specification of the '095 Patent defines "twisted pairs" as:

² All emphasis herein has been added unless otherwise noted.

pairs of insulated conductors twisted together to form a balanced transmission line. Such pairs of insulated conductors are referred to herein as ‘*twisted pairs.*’

’095 Patent 1:24-26. The ’095 Patent depicts such “twisted pairs” in FIG. 4. ’095 Patent 4:59-61 (“FIG. 4 depicts an embodiment of a data communications cable 10 according to the present invention. The cable 10 includes two twisted pairs 12 of insulated conductors 13.”); Eldering ¶30.



The ’095 Patent additionally relates to an improved data communications cable having “a plurality of twisted pairs of insulated conductors and a core made from a configurable, dielectric pair separator.” ’095 Patent 4:43-45; Eldering ¶31.

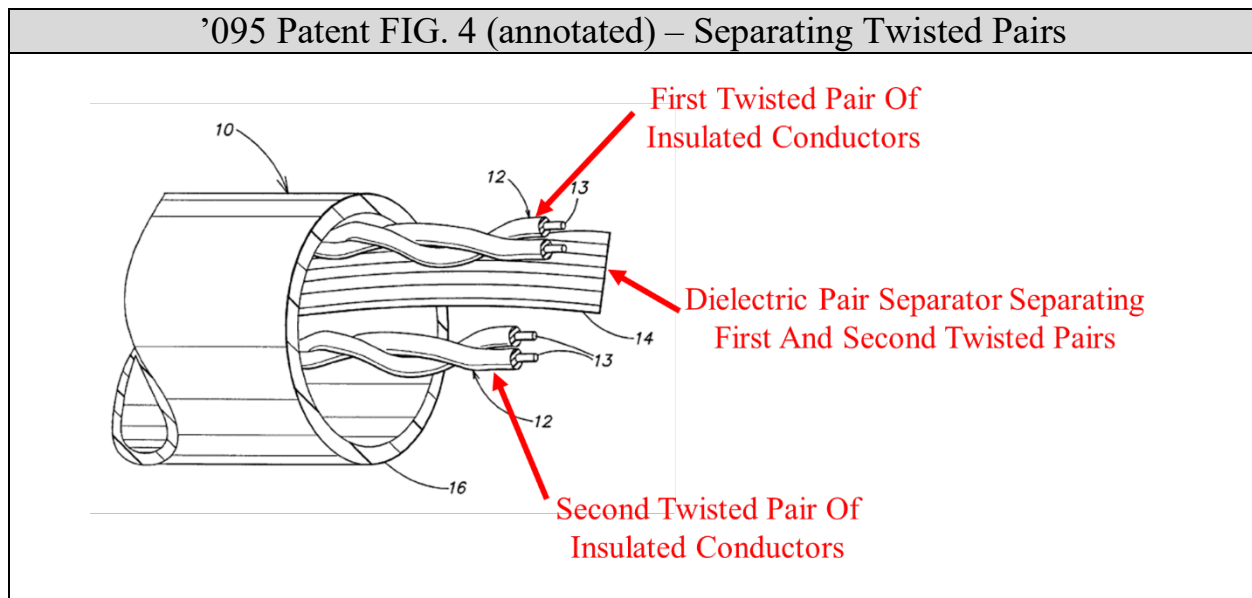
As the ’095 Patent explains,

when *twisted pairs are closely placed*, such as in a cable, electrical

energy may be transferred from one twisted pair of a cable to another twisted pair. Such energy transferred *between twisted pairs* is referred to as crosstalk. As operating frequencies increase, improved crosstalk isolation between the twisted pairs becomes more critical.

Id. at 1:27-33; Eldering ¶32.

As shown in FIG. 4, “cable 10 includes two twisted pairs 12 of insulated conductors 13. *The twisted pairs 12 are separated by a low dielectric constant, low dissipation factor, polymer ‘pair separator’ 14.* The twisted pairs 12 and the pair separator 14 are encased within a jacket assembly 16.” *Id.* at 4:60-65; *see also, id.* at 1:19-20; Eldering ¶33.



Here, “the pair separator improves the crosstalk isolation between the twisted pairs by *providing desired spacing between the twisted pairs*,” as it does in each of the disclosed embodiments. ’095 Patent 5:12-15; Eldering ¶34.

'095 Patent – Dielectric Pair Separator Provides Spacing Between Twisted Pairs

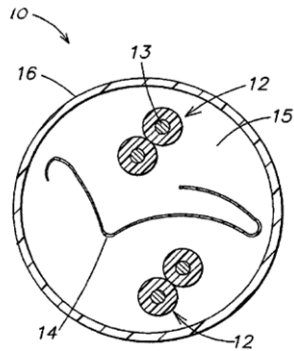


FIG. 5

“the pair separator improves the crosstalk isolation between the twisted pairs *by providing desired spacing between the twisted pairs.*” ’095 Patent 5:12-15.

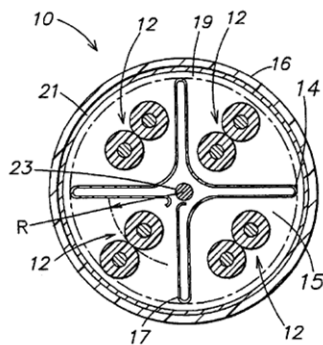


FIG. 6

“The cable includes the low-dielectric constant, low-dissipation factor polymer pair separator 14 formed into a cable core in such a way as *to physically separate the four twisted pairs 12*, thereby decreasing field coupling between the twisted pairs, providing a desired opposite twisted pair-to-pair physical distance, as well as providing a desired adjacent pair separation.” *Id.* at 5:67-6:7.

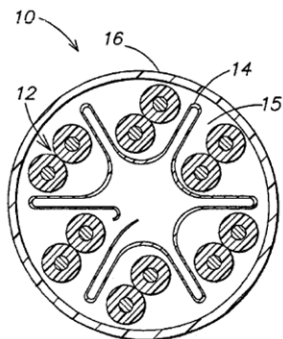


FIG. 7

“FIG. 7 depicts a cable 10 wherein six twisted pairs 12 are encased within the jacket assembly 16, and *are separated from each other by the configurable pair separator 14.*” *Id.* at 7:29-32.

'095 Patent – Dielectric Pair Separator Provides Spacing Between Twisted Pairs

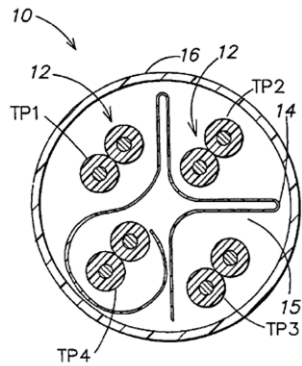


FIG. 8

“Accordingly, with this embodiment of the cable of the invention, there can be selective enhancement of isolation between twisted pairs TP1-TP4, TP2-TP4, and TP3-TP4. It is to be appreciated that although the twisted pair TP4 has been illustrated as being isolated from the remainder of the twisted pairs, that *any of the twisted pairs can be so wrapped with the filler and isolated.*” *Id.* at 7:55-61.

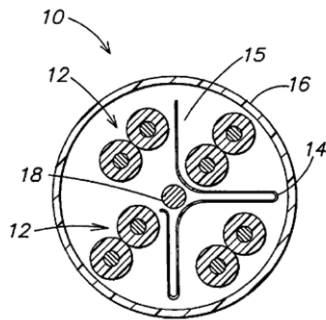


FIG. 9

“FIG. 9 depicts still another embodiment of the data communications cable 10 having multiple twisted pairs 12 encased within the jacket assembly 16 and *physically separated from each other by the configurable pair separator 14 . . .*” *Id.* at 8:3-6.

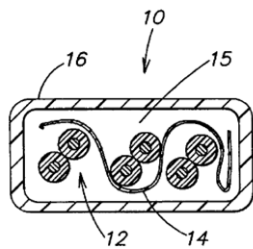


FIG. 10

“Twisted pairs 12 are encased within a substantially flat jacket assembly 16 and *physically separated from each other by the configurable pair separator 14.*” *Id.* at 8:26-28

'095 Patent – Dielectric Pair Separator Provides Spacing Between Twisted Pairs

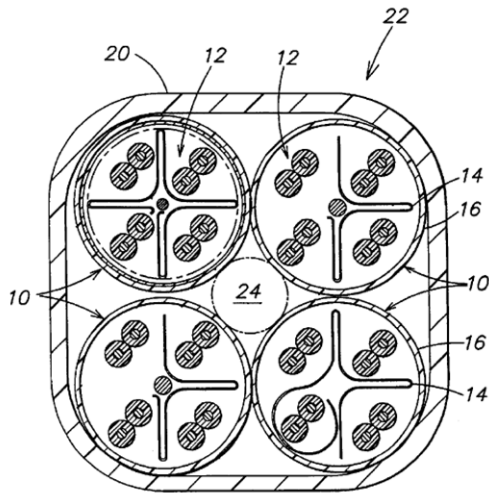


FIG. 11

“In particular, each data cable 10 contains multiple twisted pairs 12 *separated by the configurable pair separator 14* according to any of the above-described configurations, and encased in the jacket assembly 16.” *Id.* at 8:46-50.

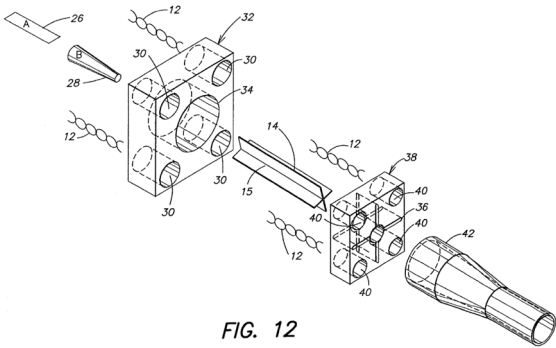
In a twisted pair cable, “each twisted pair has a specified distance between twists along a longitudinal direction of the twisted pair, that distance being referred to as the ‘twist lay.’” ’095 Patent 1:50-53. The ’095 Patent teaches that, with the invention, a reduction in the number of twist lays, namely a longer distance between twists, can be employed while achieving the same crosstalk isolation:

This embodiment of the invention [shown in Fig. 8] may also be used in conjunction with *a lessening of the twist lays requirements for the twisted pairs, to provide cable having a same amount of isolation between twisted pairs as a cable with tighter twist lays*. Accordingly, this embodiment of the cable according to the invention allows for selective design of isolation between particular twisted pairs of the cable and lessening of the twist lay requirements for the cable.

’095 Patent 7:62-8:2. Accordingly, employing a dielectric pair separator between the various twisted pairs comprising the cable in order to physically distance them from each other provides “a high-speed data cable having multiple twisted pair wires

with desired crosstalk performance, improved handling and termination capabilities, that is inexpensive, flexible and has a desired size.” ’095 Patent 2:60-64; *see also*, 9:17-38; Eldering ¶¶35-37.

In addition, the ’095 Patent teaches “***bunching***,” where the twisted pairs and pair separator combination may be ***additionally*** configured by twisting all of those components together when forming the data communications cable, to improve the mechanical properties of the cable, namely keeping the components of the cable in their respective positions. Regarding FIG. 12, the ’095 Patent teaches that:

’095 Patent FIG. 12	’095 Patent 9:2-12.
 FIG. 12	The formed pair separator 15 is then passed through opening 36 in second die 38 and brought together with the four twisted pairs 12 which are passed through corresponding openings 40 in the second die. <i>The plurality of twisted pairs are then cabled with the formed pair separator by a third die 42, in an operation referred to as “bunching”.</i> The third die places the twisted pairs in the channels 15 (see FIGS. 5-10) of the formed pair separator prior to <i>twisting of the cable</i>. It is to be appreciated that the cable can be twisted with any known twisting arrangement such as a helix, or an S-Z configuration.

The “bunching” process taught by the ’095 Patent is different than, and entirely separate from, the helical twisting of a given pair of conductors together to form a

“twisted pair.” Instead, the twisting associated with “bunching” involves all of the components in the cable, including the plurality of twisted pairs and the pair separator. ’095 Patent 9:2-12. Eldering ¶¶38-39.

III. CLAIM CONSTRUCTION

“It is well-established that . . . validity analysis is a *two-step procedure*.” *Deere & Co. v. Gramm*, 842 Fed. Appx. 628, 632 (Fed. Cir. Feb. 4, 2021) (quoting *TI Grp. Auto. Sys. (N. Am.), Inc. v. VDO N. Am., L.L.C.*, 375 F.3d 1126, 1139 (Fed. Cir. 2004)); *see also Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed. Cir. 2003) (“Both anticipation under § 102 and obviousness under § 103 are two-step inquiries.”). “The first step involves the *proper interpretation of the claims*. The second step involves determining whether *the limitations of the claims as properly interpreted* are met by the prior art.” *TI Grp. Auto. Sys.*, 375 F.3d at 1139 (quoting *Beachcombers, Int’l, Inc. v. WildeWood Creative Prods., Inc.*, 31 F.3d 1154, 1160 (Fed. Cir. 1994)).

Consistent with this mandate from the Federal Circuit, under 37 C.F.R. § 42.104(b)(3)-(4), “the petition must set forth ... [h]ow the challenged claim is to be construed” and “[h]ow the construed claim is unpatentable.” *Blackberry Corp. v. Facebook, Inc.*, IPR2019-01593, Paper 9 at 3-4 (Apr. 17, 2020) (“It is Petitioner’s burden to show *in the Petition* its contentions regarding how the challenged claim *is to be construed* and how, *so construed*, the claim is rendered obvious by the asserted

references.”) (emphasis in original).

In the Petition, Petitioner proposed constructions for five claim terms/phrases. Pet. 11-18 (proposing claim constructions for the preamble, “dielectric pair separator,” “substantially flat,” “configurable,” and “grooves.”).³ But despite the fact that the critical term “twisted pair[s]” appears *over twenty (20) times* in the Challenged Claims and Petitioner’s acknowledgement that there is a dispute whether “twisted pairs” are disclosed in Roberts, a prior art reference relied upon for Grounds 1, 2, 5, and 6 (Pet. 60 (“To the extent Roberts is found to not expressly teach that its “pairs” are *twisted* pairs”) (emphasis in original), Petitioner selectively chose not propose a construction for this key claim term, as it was required to do under 37 C.F.R. § 42.104(b)(3).

³ For purposes of this Preliminary Response, the construction of those five terms/phrases are not relevant to Patent Owner’s arguments herein, and Patent Owner does not address them at this time. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”). Patent Owner does not concede that any of Petitioner’s proposed constructions are correct, and reserves the right to construe all of Petitioner’s terms, and any others necessary, should the Board institute *inter partes* review of the Challenged Claims.

As an initial matter, the Board should deny institution based on Petitioner’s strategic decision to avoid construing the critical claim term “twisted pair[s],” in order to allege that all of the asserted prior art references disclose twisted pairs, which they do **not** under a proper construction. *See, e.g., Unified Patents, LLC v. Elecs. & Telecomms. Res. Inst.*, IPR2021-00827, Paper 14 at 10 (Oct. 20, 2021) (“Petitioner should have provided and explained its own construction of ‘prediction value,’ a critical term in the claims.”); *Cradlepoint, Inc. v. Sisvel Int’l S.A.*, IPR2021-00815, Paper 18 at 9 (Oct. 15, 2021) (“[I]t is important to note that the scope of the ‘attach request is configured to’ language is key to Petitioner’s case and should have been presented.”); *Helmerich & Payne Int’l Drilling Co. v. Nabors Drilling Techs. USA, Inc.*, IPR2021-00897, Paper 12 at 19 (Nov. 10, 2021) (“Petitioner’s arguments are too conclusory to meet its burden Petitioner does not indicate clearly how it interprets the claimed step of ‘comparing’ two orientations ‘based on operating parameters,’ making it very difficult to understand Petitioner’s theory of the case.”); *Abbott Diabetes Care Inc. v. Dexcom, Inc.*, IPR2022-00918, Paper 17 at 24 (Nov. 3, 2022) (“To the extent Petitioner intended ‘over’ to be broadly construed to encompass any spatial orientation of the device, Petitioner had an obligation under 37 C.F.R § 42.104(b)(3) to identify the construction expressly with supporting evidence from the intrinsic record of the ’452 patent.”); *Facebook, Inc. v. Voxer IP LLC*, IPR2021-00113, Paper 14 at 10 (May 7, 2021) (“Petitioner’s decision not to

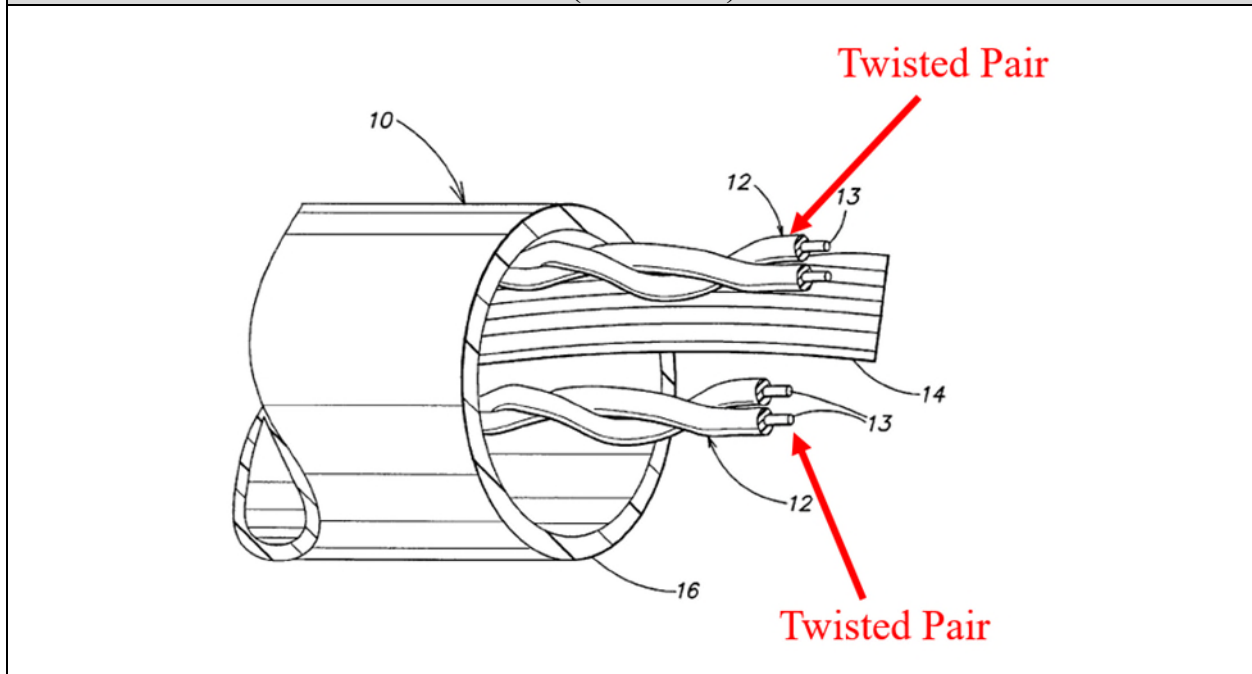
propose a specific construction, combined with its failure to explain adequately how the prior art teaches or suggests the limitation ... contributes to our determination that the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of the challenged claims.”). And to the extent that Petitioner relied upon the plain and ordinary meaning of “twisted pair[s],” “such an analysis should have been set forth explicitly in the Petition.” *Intel Corp. v. VLSI Tech. LLC*, IPR2019-00034, Paper 13 at 15-16 (Sept. 25, 2020).

Turning to the claim construction of “twisted pair[s]” and looking first to the specification of the ’095 Patent to construe “twisted pair[s],” the specification offers the following definition of the term that Petitioner chose to disregard in its Petition:

High-speed data communications media in current usage include ***pairs of insulated conductors twisted together to form a balanced transmission line***. Such pairs of insulated conductors are referred to herein as “twisted pairs.”

’095 Patent 1:23-26; *see Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) (“When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.”); *Eldering* ¶40.

Consistent with that definition in the specification, FIG. 4 of the ’095 Patent shows a “cable 10 includ[ing] two twisted pairs 12 of insulated conductors 13.” ’095 Patent 4:59-61; *Eldering* ¶41.



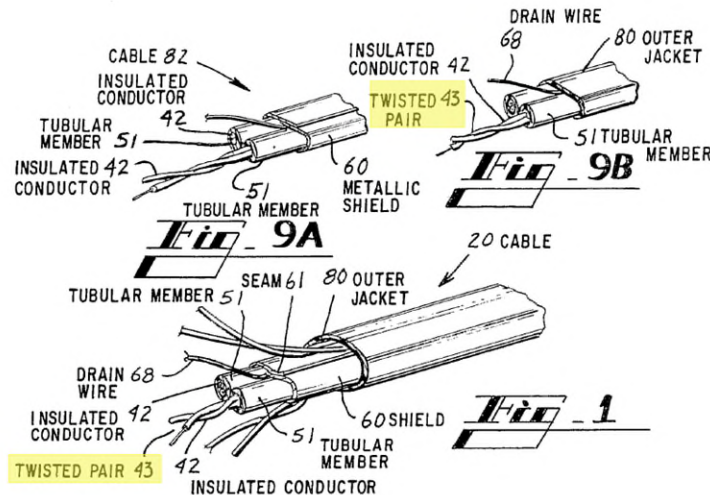
As shown in FIG. 4, which is part of the intrinsic record and instructive regarding the meaning of the “twisted pair[s]” claim term, and its associated limitations, the two, individual conductors in each pair (*i.e.*, each set of two separately insulated wires) are twisted together in a helix. Eldering ¶42; *see, e.g., Autogiro Co. of Am. v. United States*, 384 F.2d 391, 398 (Ct. Cl. 1967) (“In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification.”).

The '095 Patent's definition and depiction of twisted pairs is also consistent with the definition of “twisted pairs” provided in a technical dictionary. *See* EX-2002 503 (“A twisted pair comprises ***two copper conductors***, separately insulated by a dielectric material and smoothly ***twisted in a helix*** with a constant pitch or

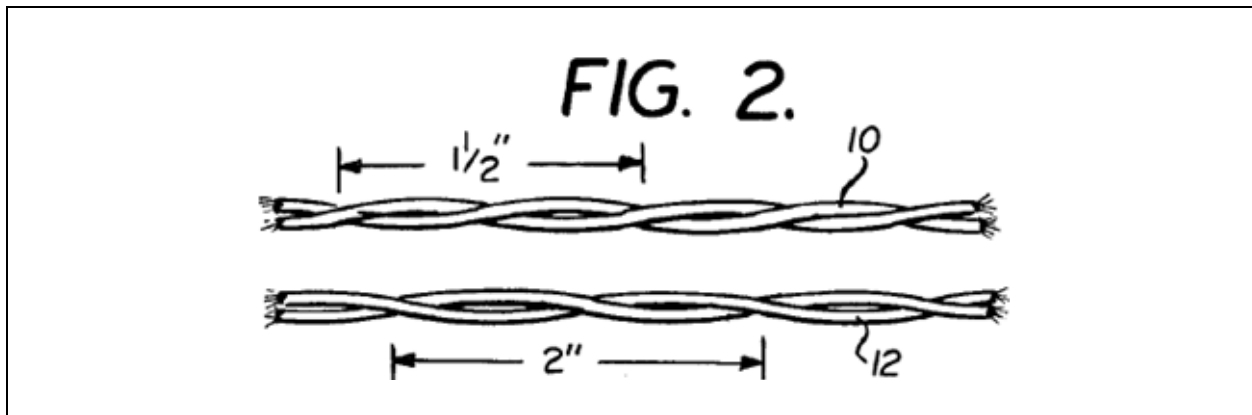
distance to make a 360° twist.”). Eldering ¶43; *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) (*en banc*) (approving the use of technical dictionaries); *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237-38 (Fed. Cir. 2016) (approving the Board’s use of a computer technical dictionary).

That plain and ordinary meaning of “twisted pair[s]” to a POSITA (*i.e.*, requiring “**two** insulated conductors **twisted together**” as shown in FIG. 4 like the ’095 Patent’s definition that further requires that the pair form a balanced transmission line)⁴ is also confirmed in the figures and description of “twisted pair[s]” in some of Petitioner’s prior art references (*i.e.*, Beggs (EX-1015) and Jachimowicz (EX-1014)) that illustrate how twisted pairs constitute two insulated conductors twisted together in a helix. Eldering ¶44.

⁴ Even under the broader plain and ordinary meaning of “twisted pairs,” Petitioner failed to demonstrate that any of the Challenged Claims are anticipated or obvious. Accordingly, while not necessary to deny institution, Patent Owner reserves its right to argue that “twisted pairs” should be more narrowly construed as defined in the specification of the ’095 Patent (*i.e.*, further requiring a balanced transmission line). ’095 Patent 1:23-26.



Beggs 5:33-37, FIGS. 1, 9A, 9B.



Jachimowicz-172 2:66-3:4, FIG. 2 (twisted pairs 10 and 12).

Accordingly, the intrinsic and extrinsic evidence confirms that the plain and ordinary meaning of the claimed “twisted pair[s]” that are separated by a dielectric pair separator to a POSITA is “*two* insulated conductors *twisted together*” as shown in FIG. 4. Eldering ¶45. “Petitioner’s failure to recognize and address the express construction, coupled with Petitioner’s failure to otherwise sufficiently address the meaning of the term, is insufficient to satisfy the requirements of 37 C.F.R. §

42.104(b)(3),” requiring that the Board deny institution. *Volkswagen Grp. of Am., Inc. v. Michigan Motor Techs., LLC*, IPR2020-00229, Paper 13 at 9-10 (Jul. 6, 2020).

IV. THE CHALLENGED CLAIMS ARE NOT ANTICIPATED OR OBVIOUS.

A. Petitioner Has Not Met Its Burden Of Establishing A *Prima Facie* Case Of Anticipation Or Obviousness.

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. *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)); *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).

“[D]ifferences between the prior art reference and a claimed invention, however slight, invoke the question of obviousness, not anticipation.” *Net MoneyIN, Inc.*, 545 F.3d at 1371. “[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.” *Id.*; *see also Microsoft Corp.*, 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.” *Net MoneyIN*, 545 F.3d at 1371 (quoting *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972)).

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.*

Petitioner failed to show that the asserted prior art references, taken alone or in combination, teach or suggest all of the limitations of the Challenged Claims,

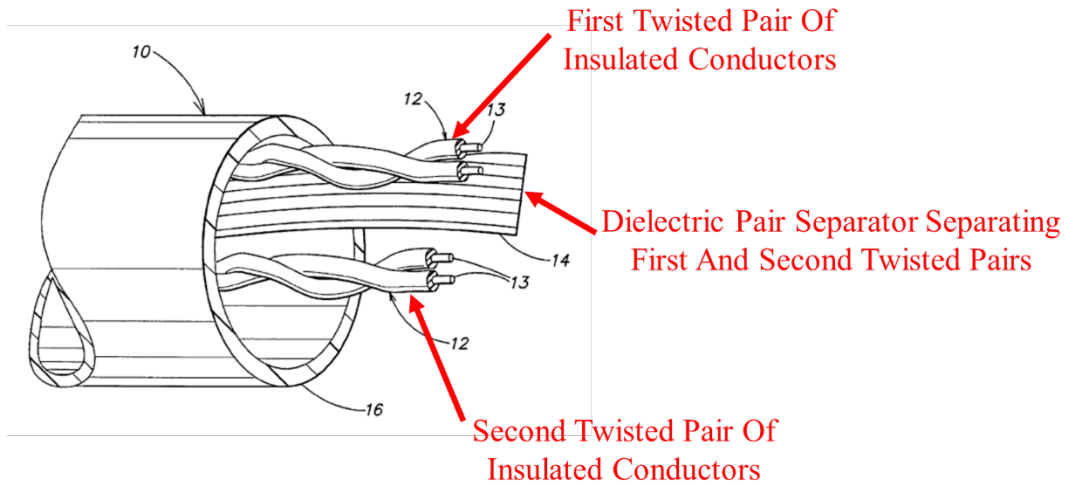
including the following limitations of independent claims 27 and 31 of the Challenged Claims:⁵

'095 Patent Claim 27	'095 Patent Claim 31
27.a - “a first <i>twisted pair</i> of insulated conductors” and “a second <i>twisted pair</i> of insulated conductors”	31.a - “a <i>plurality of twisted pairs of insulated conductors</i> ”
27.b – “a configurable dielectric pair separator that <i>separates the first and second twisted pairs of conductors</i> , the configurable dielectric pair separator being substantially flat”	31.b – “a configurable dielectric pair separator disposed <i>between</i> at least two of the <i>plurality of twisted pairs of insulated conductors</i> ”

Petitioner’s alleged anticipatory prior art references and combinations of prior art references all fail to teach or suggest at least these elements, in particular the critical separation of twisted pairs of insulated conductors in the claimed configurations required by the Challenged Claims:

⁵ For simplicity, Patent Owner adopts the same nomenclature for claim limitation identification as utilized in the Petition.

'095 Patent FIG. 4 (annotated) – Separating Twisted Pairs



B. Petitioner’s Anticipation Grounds All Fail To Disclose The Separation Of “A First Twisted Pair Of Insulated Conductors” And “A Second Twisted Pair Of Insulated Conductors” Required By Claim Elements 27.a And 27.b Of The ’095 Patent.

1. *Regarding Ground 1, Roberts Admittedly Fails To Anticipate Claims 27-29.*

Petitioner solely relied upon Roberts (EX-1009) to support its anticipation theory regarding claims 27-29 of the ’095 Patent. Pet. 18-30. But Roberts does not disclose or suggest separating a first “twisted pair” from a second “twisted pair” under the proper claim construction of “twisted pair” discussed above (*i.e.*, “**two** insulated conductors **twisted together**” as shown in FIG. 4 of the ’095 Patent). In fact, Roberts does not even disclose or suggest the use of any “**twisted pairs.**” Instead, Roberts teaches the use of a metallic shield to separate a **bundle** (*i.e.*, more than a pair) of straight-line (*i.e.*, non-twisted) transmitting wires (14) from another

bundle of straight-line receiving wires (16). Roberts 1:14-31, FIGS. 1-3 and 17; Eldering ¶46.

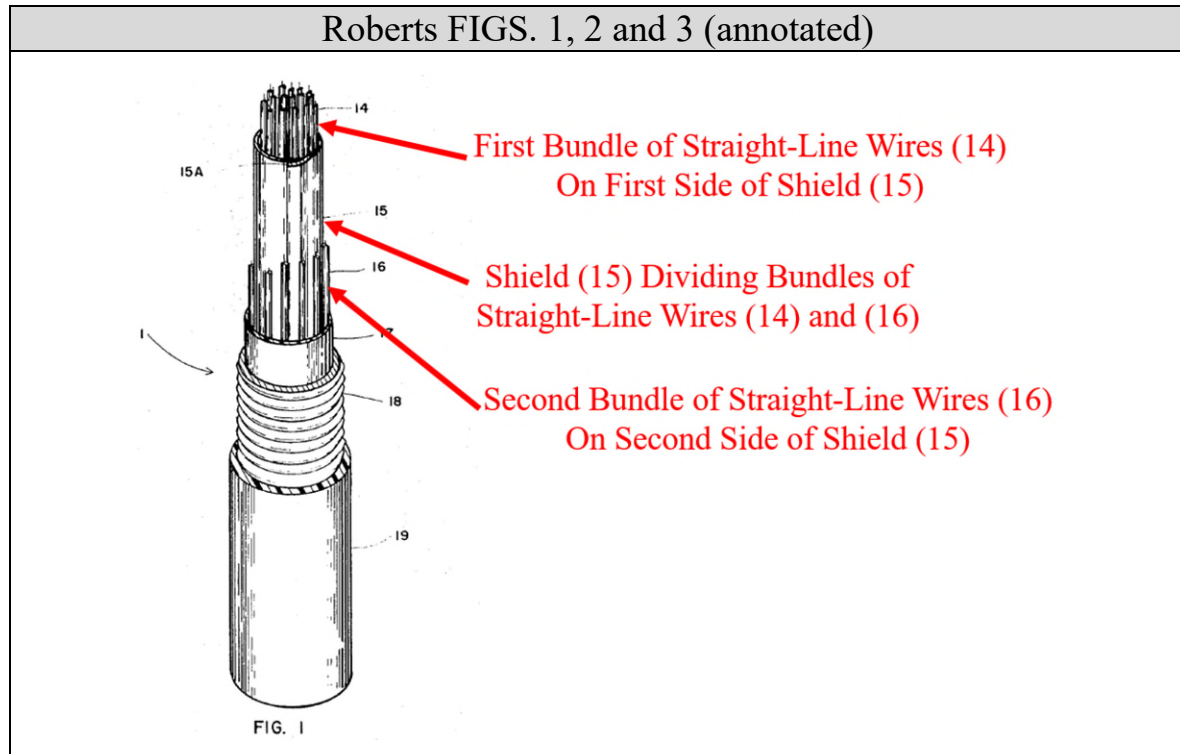
Roberts is directed to a system for isolating straight-line transmit and receive wires in an *unbalanced* transmission system using a conductive metallic shield. Accordingly, Roberts discloses dividing the individual straight-line conductors of a *non*-twisted pair by placing a conductive (*i.e.*, metallic) shield between them. As Roberts discloses:

A plurality of insulated electrical conductors (pairs), of an otherwise conventional telephone cable design are divided into at least two portions by plastic-coated metal foil strip or tape. *Measurements between pairs, divided by this plastic-coated metal foil, of unwanted energy transferred from one conductor to another by means of mutual inductive, capacity, or conductive coupling (crosstalk), shows greatly improved properties over undivided cable pairs or divided cable pairs of prior art. By dividing electrical conductor telephone pairs within a telephone cable structure with plastic-coated metal foil, the crosstalk properties are [] vastly improved . . .*

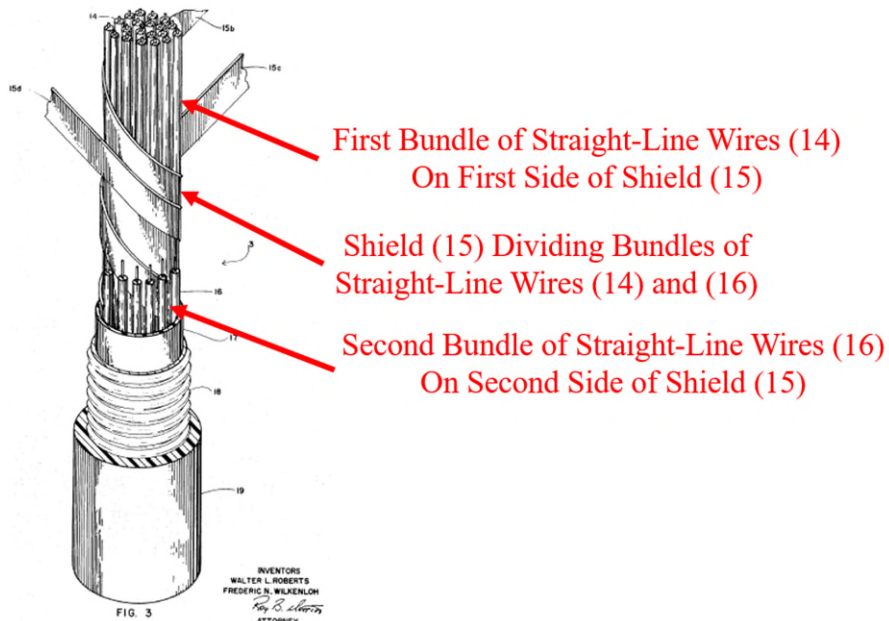
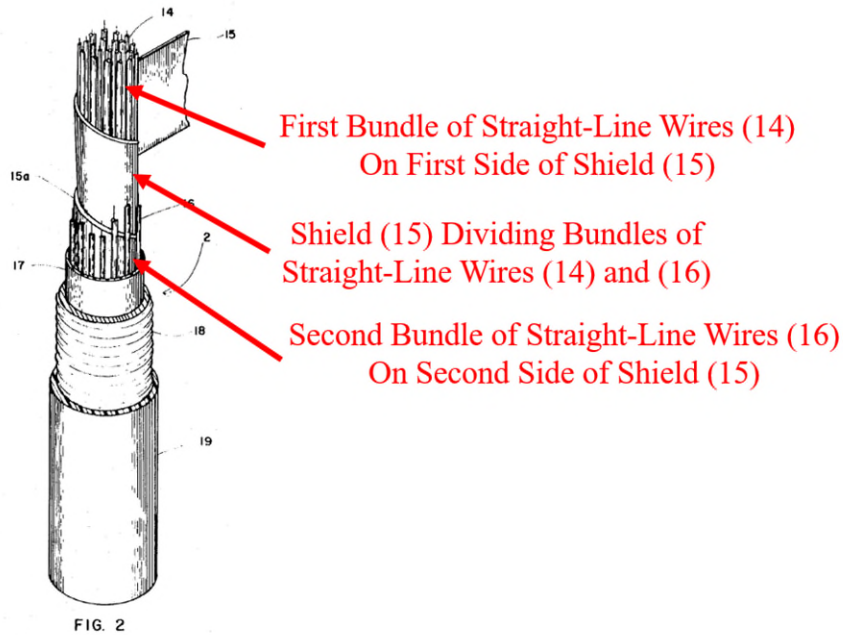
Roberts Abstract.

Accordingly, it is the purpose of this disclosure, to show how to arrange the conductors of a cable into two concentric groups, *with a shield between the two groups of conductors*. In such an arrangement of a cable, *those conductors on one side of the shield may all be used for transmitting carrier frequencies in one direction, while the returned channels for transmission in the opposite direction will be applied to the conductors on the other side of the shield. . . .* The instant invention also envisions and incorporates the concept of *two distinct bundles of conductors inside a cable structure, one such bundle being electrically shielded from the other bundles* and neither one of the aforesaid bundles necessarily being concentric around the other.

Roberts 1:14-31; Eldering ¶47. FIGS. 1, 2 and 3 of Roberts clearly depict the use of individual *straight-line wires* in each of the disclosed conductor bundles (14) and (16)—not “*twisted*” and not “*pairs*” of conductors—with the distinct bundles being separated by a metallic tape shield (15):

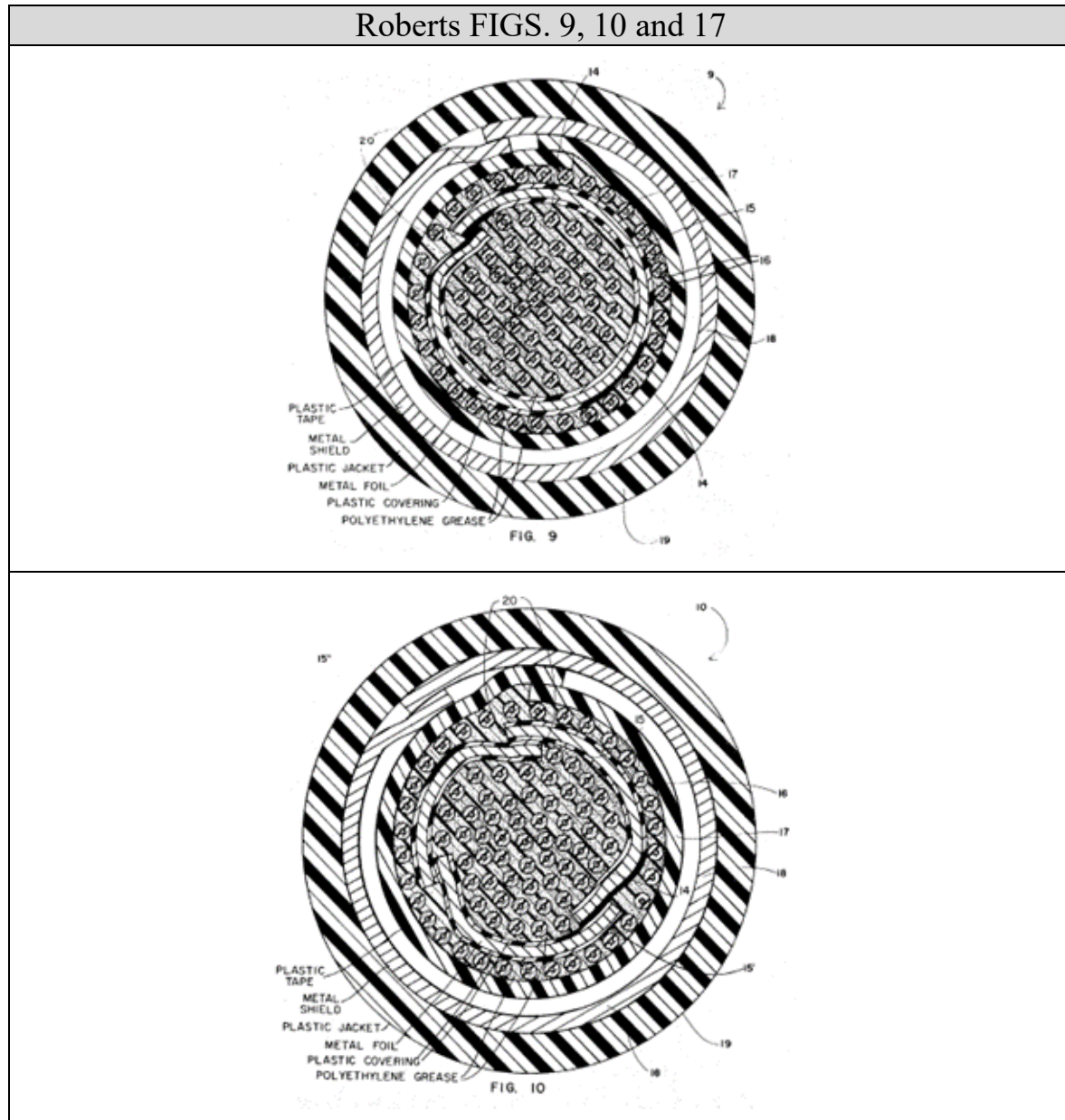


Roberts FIGS. 1, 2 and 3 (annotated)

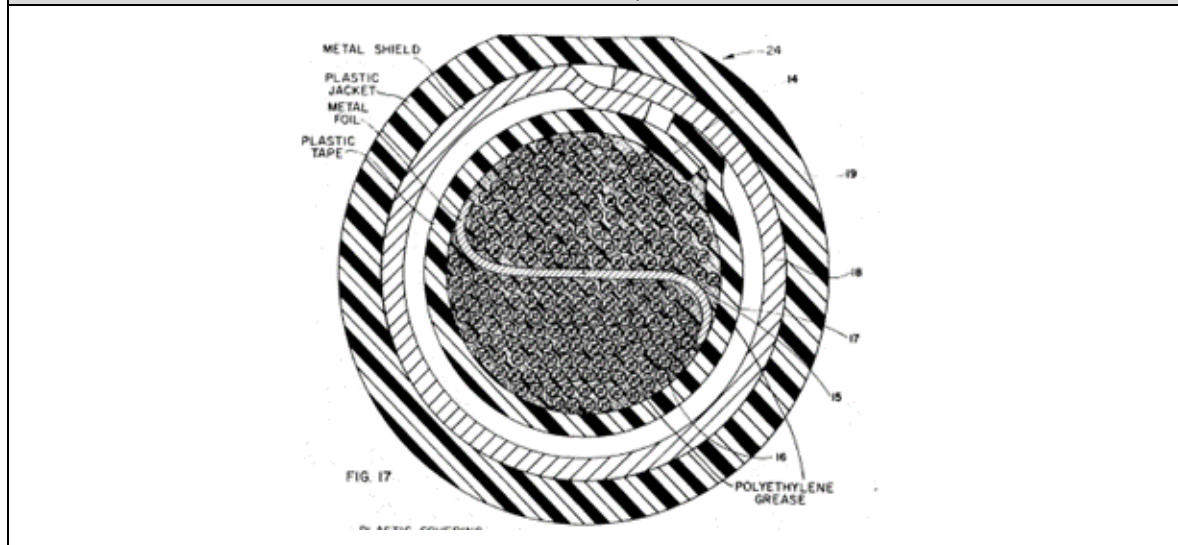


Eldering ¶48. Demonstrably, the cross-sectional view of the embodiment in Roberts relied on in the Petition (FIG. 17) depicts conductors in conductor groups (14) and (16) in the same manner as the cross-sectional views of the cables shown in FIGS. 1

and 3 above, further teaching a POSITA how the conductors in Roberts are in fact bundles of straight-line conductors, ***not*** twisted pairs as alleged (Eldering ¶49):



Roberts FIGS. 9, 10 and 17



Roberts 2:39-46, 2-75.

As a result, Roberts fails to expressly or inherently disclose that its bundle of straight-line transmitting wires (14) could somehow constitute the first twisted pair of insulated conductors limitations required by claims 27-29 of the '095 Patent. Nor does Roberts expressly or inherently disclose that its bundle of straight-line receiving wires (16) could somehow constitute the second twisted pair of insulated conductors required by claims 27-29 of the '095 Patent. The insulated electrical conductors that it discloses cannot constitute the claimed “twisted pairs,” and nor would it even make sense to a POSITA for the alleged conductors actually disclosed in Roberts to constitute such claim limitations. Elderling ¶50.

Undeterred, and absent any supporting disclosure of twisted pairs, Petitioner alleged that “[a] POSITA would have understood that these teachings indicate

twisted pairs of insulated conductors” and that “[u]sing twisted pairs was the **conventional practice** for data communications cables using pairs of copper conductors.” Pet. 22. But Petitioner’s made-up theory regarding Robert’s actual teachings, which fail to even teach any such “twisted pairs,” are misleading and incorrect, and in any event demonstrably fail to constitute an anticipatory disclosure. Petitioner failed to provide any citation to Roberts disclosing the presence or even suggestion of twisted pairs, let alone separated twisted pairs. Eldering ¶51.

As Roberts further discloses:

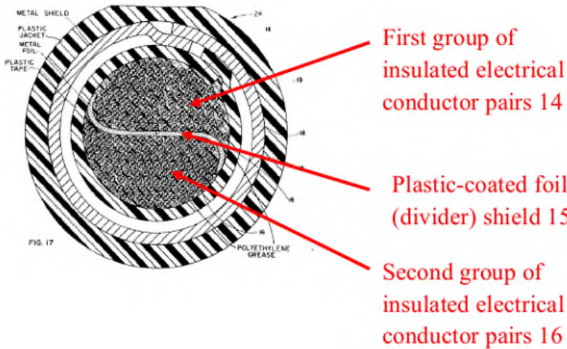
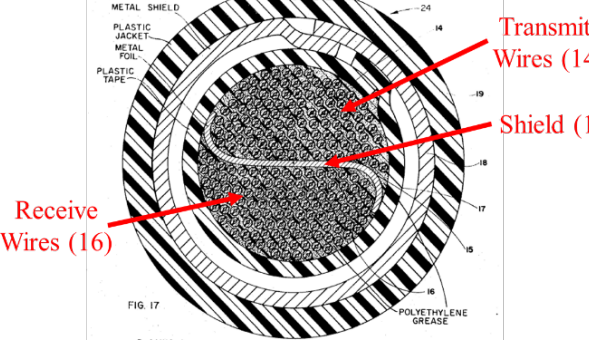
In order to transmit currents of the same frequency in both directions within the same cable, more particularly when the currents to be transmitted are of carrier frequencies, ***it is desirable that the conductors used for transmitting in one direction be shielded (electrically) from those transmitting in the opposite direction.***

Roberts 1:8-14. Therefore, the non-twisted configuration disclosed in Roberts consists of (1) a bundle (*i.e.*, more than a pair) of straight-line “transmit” wires (14) that are designed to transmit signals in one direction, (2) a bundle of straight-line “receive” wires (16) that are designed to receive signals in the opposite direction (*i.e.*, reception), and (3) a metallic shield (15) between the transmit bundle of straight-line wires and the receive bundle of straight-line wires. Eldering ¶51.

Roberts does not disclose that any “pair” of twisted wires are located on the same side of the shield, which makes sense because the purpose of Roberts’ teachings center on separating a non-twisted bundle of transmit wires from a non-

twisted bundle of receive wires, not to separate a first twisted transmit and receive wire pair from a second twisted transmit and receive wire pair from each other. Eldering ¶52.

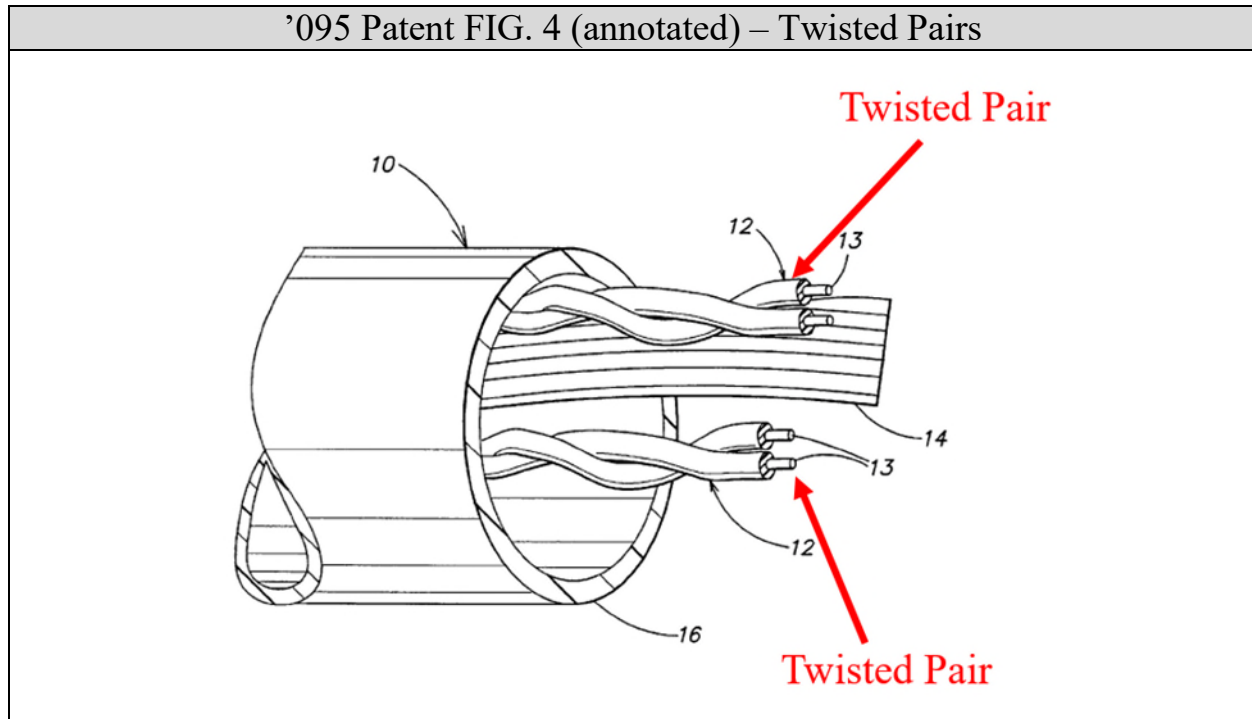
Contrary to Roberts’ actual teachings, Petitioner and its expert resorted to improper and unsupported hindsight reconstruction by arbitrarily and incorrectly labeling Roberts Figure 17 as if its bundle (*i.e.*, more than a pair) of non-twisted “transmit” wires (14), which are located are one side of a metallic shield (15), could somehow satisfy the “first twisted pair of insulated conductors” claim limitations at issue. Likewise, Petitioner incorrectly labeled Roberts Figure 17 as if its bundle of “receive” wires (16), which are located on the other side of such shield (15), could somehow satisfy the “second twisted pair of insulated conductors” claim limitations at issue, as follows:

Petitioner’s Depiction of Roberts (Pet. 19, EX-1007 ¶91)	Roberts Actual Disclosure (Roberts 1:5-31, Eldering ¶53¶)
	

Pet. 19, 21-22, EX-1007 ¶¶87-94; Eldering ¶53. But Petitioner’s labels are wrong.

As shown previously, the ’095 Patent defines a “twisted pair” as a “*pair[]*” of

insulated conductors *twisted together to form a balanced transmission line*,” as shown in FIG. 4 of the '095 Patent. Eldering ¶54.



In reality, the transmit and receive conductor “pairs” disclosed in Roberts are on opposite sides of the shield (15), and therefore cannot be “twisted together,” as defined and claimed in the '095 Patent. In fact, as shown above, the alleged wires in Roberts are not twisted at all, but rather bundled straight-line conductors. Such a non-twisted bundle of straight-line transmit wires (14) in Roberts cannot constitute the claimed “first twisted pair of insulated conductors,” and such a non-twisted bundle of straight-line receive wires (16) in Roberts cannot constitute the claimed “second twisted pair of insulated conductors”. Eldering ¶¶55-56.

To try and overcome these deficiencies, Petitioner and its expert also resorted

to improper and unsupported hindsight reconstruction of Roberts’ teachings about its cable manufacturing processes, contrary to what Roberts actually discloses. Pet. 19-22 (“Roberts explains that the cable manufacturing process uses a die 30a shown at Fig. 23 that has ‘holes (33) through which *twisted* electrical conductors (14) and (16) pass’”(emphasis in original)). But the twisting referred to in Petitioner’s out-of-context snippet is not referring to twisted pairs (*i.e.*, “*two* insulated conductors *twisted together*” as shown in FIG. 4 of the ’095 Patent). Instead, it is referring to the twisting of all of the cable’s components together as part of the cable assembly process. Neither FIG. 23, nor its corresponding disclosure, discuss or refer to “twisted pairs” of wires. Eldering ¶57.

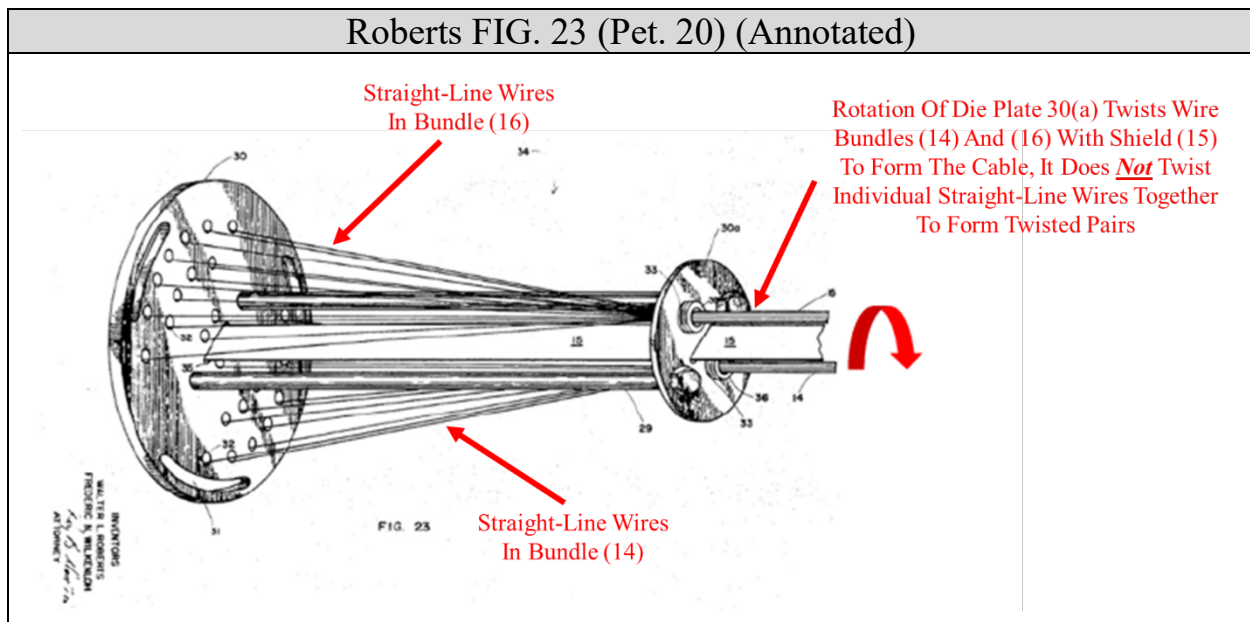


FIG. 23 “is an enlarged diagrammatic view of a rotating die member used to apply the plastic-coated metal foil shield between first and second groups of electrical

conductors.” Roberts 3:11-13. “This particular die means is made up of dieplates (30) and (30a), spaced apart by two crossbar means (29).” Roberts 11:71-72. Roberts further teaches that the composite grouping of electrical conductors (14) and (16), along with shield (15), can all be twisted together as part of the cable manufacturing process. Roberts 12:12-26. Accordingly, as the straight line and individual electrical conductors pass through the holes (33) of the rotating die plate (30(a)), they are assembled together to form a bundle of transmit wires (14) that is separated from a bundle of receive wires (16) by metallic shield tape (15). Eldering ¶58.

The cable manufacturing process taught here in Roberts, in which all of the components of the cable are twisted together to form the cable, is therefore akin to the cable “bunching” process taught in the ’095 Patent, as discussed above, which has nothing to do with twisting two insulated conductors together to form a twisted pair, as defined in the ’095 Patent. Eldering ¶59¶.

Therefore, Roberts’ teaching of the use of a rotating die plate (30(a)) to rotate its bundle of straight-line transmit wires (14) and its bundle of straight-line receive wires (16) along with the shield (15) cannot support Petitioner’s false premise that Roberts’ bundle of straight-line transmit wires (14) could satisfy the claimed first twisted pair of electrical conductor limitations required by the Challenged Claims. Nor can it support Petitioner’s false premise that Roberts’ bundle of straight-line

receive wires (16) could satisfy the claimed second twisted pair of electrical conductor limitations required by the Challenged Claims. The “conductor pairs” referred to in Roberts are untwisted straight-line conductors that at all times remain on opposite sides of shield (15). They therefore cannot ever be “twisted together” as required to form a “twisted pair.” Eldering ¶60.

In tacit recognition of such deficiencies in its anticipation theory, Petitioner admitted “[a] POSITA would have understood that these teachings *indicate* twisted pairs of insulated conductors” and that “[u]sing twisted pairs was the *conventional practice* for data communications cables.” Pet. 22. In other words, Petitioner attempts to establish anticipation by Roberts not because Roberts explicitly discloses twisted pairs, but that a POSITA would infer that it does. Tellingly, Petitioner did not even assert that twisted pairs are inherent in Roberts, which would have required it to show that the elements are necessarily present in Roberts, which they are not. “[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation” *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002); *see also Par Pharm., Inc.*, 773 F.3d at 1195-1196 (“[T]o rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.”). But Petitioner

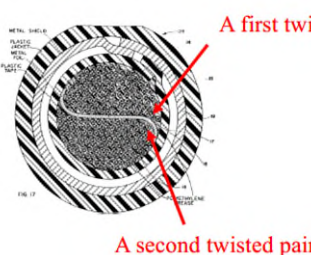
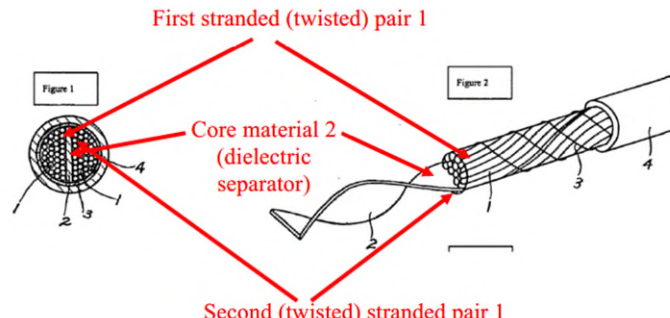
did not even attempt to make such a showing since Roberts, in reality, teaches an entirely different solution to reducing crosstalk between conductors in a cable that does ***not*** use twisted pairs, namely separating individual transmit and receive wires of a pair with a metallic shield.

For all these reasons, Roberts fails to teach or suggest the critical separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” elements required by the ’095 Patent claims at issue. Accordingly, for this reason alone, Roberts fails to anticipate claim 27.⁶ Likewise, because claims 28 and 29 depend from independent claim 27, Roberts fails to disclose each and every element of claims 28 and 29 and does not anticipate claims 28 and 29. Eldering ¶61.

2. *Regarding Ground 7, Yanagita Fails to Anticipate Claims 27-29.*

Petitioner alleged that Yanagita (EX-1012) anticipates claims 27-29 of the ’095 Patent. Pet. 64-72. But the arguments Petitioner made regarding Yanagita mirror those—and are as equally flawed as—those it made regarding Roberts, because both Roberts and Yanagita disclose separated bundles of straight-line conductors, not twisted pairs of insulated conductors. Eldering ¶62.

⁶ Tellingly, as discussed above in Claim Construction, Petitioner acknowledged that there is a dispute as to whether “twisted pairs” are disclosed in Roberts.

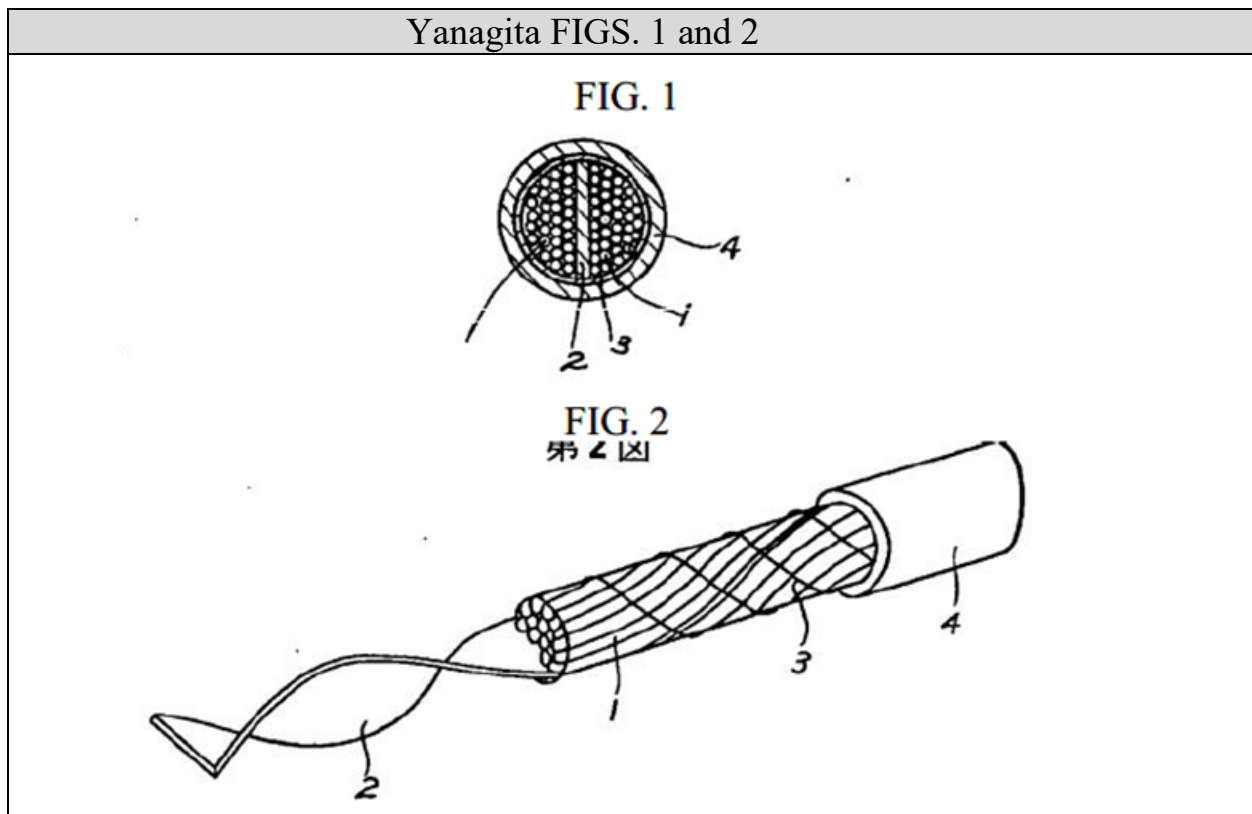
Petitioner's Roberts Allegations (Pet. 21)	Petitioner's Yanagita Allegations (Pet. 66)
FIG. 17 	

Petitioner asserted that Yanagita, an English translation of the underlying Japanese language patent application publication, discloses “twisted pairs” of conductors.⁷ It does not. In fact, Yanagita fails to teach anything about—and never even mentions—the reduction of crosstalk in a cable or the separation of twisted pairs. Eldering ¶¶63.

⁷ In the Petition materials, both Petitioner and its expert cited to Exhibit EX-1055, which contains an uncertified translation of Japanese Patent Application Publication S43-15470. Pet. 64, 66; EX-1007 ¶¶100, 257. But in reality, there are fundamental differences between the relied upon certified translation in Exhibit EX-1012 and the uncertified translation in Exhibit EX-1055. As one example, Petitioner refers to EX-1012 as “Yanagida” throughout the Petition when the certified translation in EX-1012 actually reads “Yanagita.” As a result, the uncertified translation of Exhibit EX-1055 is improper under 37 C.F.R. § 42.63, and thus should be disregarded.

According to the certified Yanagita translation relied on in the Petition, the invention of Yanagita relates “to an alternately twisted cable that ***prevents twisting of a wire core from becoming undone.***” Yanagita 1 (col. 1). Yanagita discloses laying groups (*i.e.*, bundles (not pairs)) of parallel wires (*i.e.*, ***untwisted*** wires) over a twisted core material such that “the twisting will not become undone even when a tensile force is applied, in the lengthwise direction, to the wire core.” Yanagita 1 (col. 2); Eldering ¶64.

As disclosed in FIGS. 1 and 2, Yanagita discloses separated bundles (*i.e.*, not pairs) of straight-line conductors



The present invention focuses on this point, and a first invention thereof

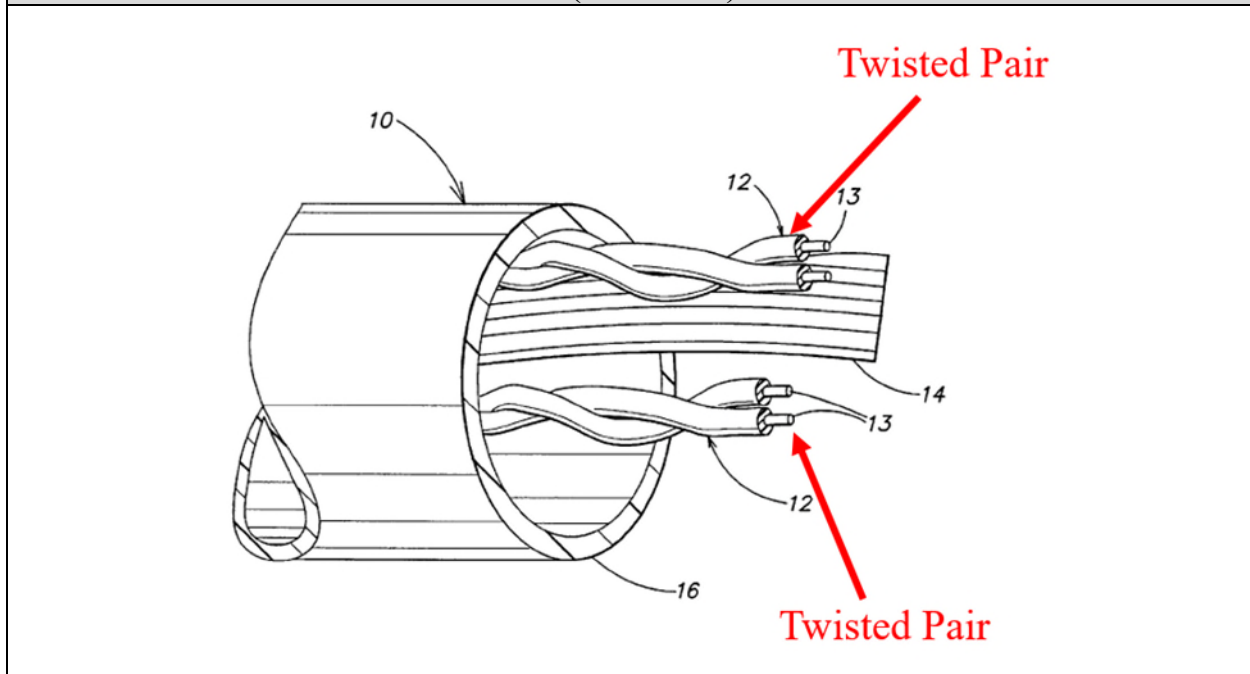
is an alternately twisted cable wherein *a large number of insulated wire strands, or that wherein the insulated wire strands are twisted together, are laid, while twisting along the surfaces, along both surfaces of a core material* that is made by forming a plate-shaped body so that the direction of the surface thereof gradually changes in a reciprocatingly twisted shape, applying a pressing coil on the outer periphery thereof, and covering the outer periphery thereof with a cable sheath, and a second invention is an alternately twisted cable wherein a portion of the aforementioned core body is replaced with a connecting portion.

Explaining this for an illustrated embodiment, *1 is an insulated wire or that wherein insulated wires are twisted together, laid divided onto both sides of a core material* 2, with the outer periphery thereof wrapped with a rough wrapping yarn for applying pressure, with the outer periphery then covered with a cable sheath 4. The core material 2 is formed in a reciprocatingly twisted shape so that the directions of both sides gradually change along the lengthwise direction thereof, as depicted best in FIG. 2.

Yanagita 1 (col. 1); Eldering ¶65.

As this language plainly describes, and as shown in FIGS. 1 and 2, Yanagita teaches a bundle of insulated wires that are laid on opposite sides of a core material and twisted together along the surfaces of the core in a longitudinal direction. Eldering ¶66. As shown in FIG. 2, the resulting twisting of the insulated wire or groups of insulated wires follows the contour of the inner core. But nowhere does Yanagita even refer to two, individual conductors forming or being part of a “pair,” let alone teach two conductors that are “twisted together” to form a “twisted pair.” Accordingly, the groups of wires disclosed in Yanagita cannot be “twisted pairs” as defined by the ’095 Patent. Eldering ¶67.

'095 Patent FIG. 4 (annotated) – Twisted Pairs



Despite Petitioner’s unsupported theory that Yanagita anticipates claim 27 of the '095 Patent, and rather than rely on the plain language of Yanagita in the context of its Figures, Petitioner only relied upon two citations to the asserted certified Yanagita translation itself regarding the twisted pair claim limitations at issue. Pet at 65-66; Eldering ¶68. The first of these citations paraphrases Yanagita by stating that “Yanagida discloses a plurality of ‘strands of insulated wires or pairs thereof’ that run along the surface of the core material. Yanagida, 1[col.1].” Pet. 65. But when read in context, the cited language at issue here is drawn to the prior art, not any embodiment disclosed in Yanagita:

There is a trend to often using, as communication cables, so-called “alternatingly twisted cables,” wherein that wherein a large number of *strands of insulated wires or pairs thereof* or quad strands, or units

thereof, are twisted together so as to reverse the direction of twisting thereof with given periodicity. However, there is a shortcoming with this type of cable in that, when a tensile force is applied in the lengthwise direction of the cable core prior to application of the cable sheathing, in particular, the twisting of the cable core becomes undone, and while there has been a variety of innovations to prevent this, each has problems in practice.

Yanagita 1 (col. 1) (language cited and relied on in Petition emphasized); Eldering ¶69.

In reality, there is no disclosure of twisted pairs, or of separating twisted pairs, here. Indeed, a POSITA would understand this disclosure to teach that a large number of insulated wires are all twisted together in such a manner that they rotate in a periodical manner along the length of a cable, in a similar manner to that shown in Yanagita FIG. 2 shown above (absent the inventive core). Eldering ¶70. If anything, this teaching in Yanagita is akin to the cable manufacturing process disclosed in Roberts and the cable “bunching” process taught in the ’095 Patent, as discussed above. A POSITA would not understand this to teach twisted pairs in any way. Eldering ¶71.

Additionally, here Yanagita identifies the problem in the art of “alternatingly twisted cables” in which “the twisting of the cable core becomes undone” “when a tensile force is applied in the lengthwise direction of the cable core prior to application of the cable sheathing.” Yanagita 1 (col. 1). Yanagita subsequently presents a solution to that problem that involves the use of a core material to provide

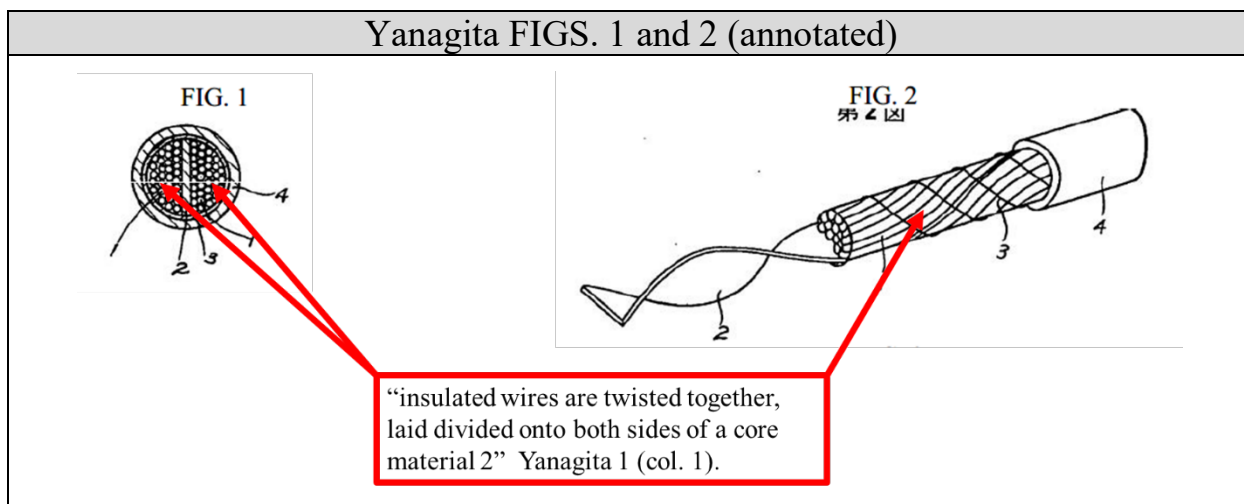
improved mechanical characteristics and avoid unraveling of the cable. Eldering ¶72. Based on hindsight, Petitioner misleadingly cobbled together Yanagita’s discussion of the prior art and associated problem with disparate elements of the disclosed solution in an attempt to read on claim 27 of the ’095 Patent. But as the Federal Circuit has explained, “it 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.” *Net MoneyIN, Inc.*, 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 Corp.*, 878 F.3d at 1069. Instead, 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.” *Net MoneyIN*, 545 F.3d at 1371 (quoting *In re Arkley*, 455 F.2d at 587). As shown here, the cited language in Yanagita not only fails to disclose what Petitioner asserts it discloses (*i.e.*, twisted pairs), but it also misrepresents what Yanagita actually teaches. Eldering ¶73.

Likewise, Petitioner’s second citation to Yanagita, read in context, fails to disclose the “twisted pair” claim elements at issue. Pet. 65-66 (“element 1 can be

where “insulated wires are twisted together”). In context, the cited language reads as follows:

Explaining this for an illustrated embodiment, 1 is an insulated wire or that wherein *insulated wires are twisted together*, laid divided onto both sides of a core material 2, with the outer periphery thereof wrapped with a rough wrapping yarn for applying pressure, with the outer periphery then covered with a cable sheath 4.

Yanagita 1 (col. 1) (language cited and relied on in the Petition emphasized). But as shown above, and like Roberts, Yanagita discloses that element 1 is an insulated wire or a bundle of insulated wires that are laid on opposite sides of a core and twisted together along the surfaces of the core in a longitudinal direction, as plainly shown in FIGS. 1 and 2. Eldering ¶¶74-75.



Here again, there is no teaching of “twisted pairs,” as required by the ’095 Patent claims at issue, and Petitioner’s allegations here mimic the misrepresentations it made regarding the teaching of Roberts and its disclosed groups of bundled straight-

line conductors separated by a shield. Petitioner arbitrarily selects individual straight-line conductors (1) on either side of the core material (2) and labels them twisted pairs. But as shown above, there is nothing in Yanagita to suggest that these individual straight-line conductors are part of a “pair” of conductors, let alone that they are “twisted together” to form a “twisted pair” as required by the Challenged Claims. Eldering ¶76.

Yanagita fails to teach or suggest the critical separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” elements required by the Challenged Claims. Accordingly, for this reason alone, Yanagita fails to anticipate claim 27. Likewise, because claims 28 and 29 depend from independent claim 27, Yanagita fails to disclose each and every element of claims 28 and 29 and does not anticipate claims 28 and 29. Eldering ¶77.

3. *Regarding Ground 3, GmbH-866 Fails to Anticipate Claims 27-29.*

Petitioner alleged that GmbH-866 (EX-1010) anticipates claims 27-29 of the '095 Patent. Pet. 41-52. Attempting to take its third bite at the apple, Petitioner here again failed to demonstrate how GmbH-866 teaches or suggests each and every limitation of the Challenged Claims. Like Roberts and Yanagita, nowhere does GmbH-866 teach or suggest that the electrical conductors it discloses are “twisted pairs,” nor are the words “twisted pair” ever even used. Petitioner relied upon just

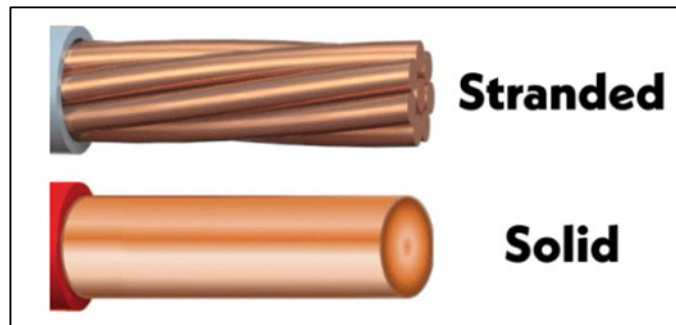
two out-of-context snippets of disclosure in GmbH-866 as allegedly disclosing the “twisted pair” limitations in claim 27 of the ’095 Patent. Pet. 43 ((1) “A data transfer cable . . . shown in Fig. 1, comprises four pairs 1, each consisting of two isolated, stranded copper conductors 2 or wires” and (2) “invention can also comprise just two pairs of stranded conductors” (emphasis omitted)). Petitioner’s entire theory is based on GmbH-866’s mere use of the word “stranded.” But neither of these snippets, read in context, teaches or suggests “twisted pairs,” or separating twisted pairs, as disclosed and claimed in the ’095 Patent. Eldering ¶¶78-79.

a. The Petition Mischaracterized GmbH-866’s Reference To “Stranded Copper Conductors Or Wires,” Which Does Not Teach “Twisted Pairs.”

The first citation the Petition is based on is not referring to twisted pairs as claimed in the ’095 Patent, but rather the fact that the conductor pairs in GmbH-866 are disclosed as consisting of either *stranded* copper conductors or *solid* wires. Contrary to Petitioner and its expert’s unsupported allegations, in the context of GmbH-866’s usage of the term, a POSITA would understand “stranded” to mean a particular type of wire composition. Eldering ¶80.

At the time of invention of GmbH-866, it was well known that a standard conductive wire could be comprised of either (1) a single solid core wire containing a single, solid strand of conductive material (typically copper), or (2) stranded conductors, each conductor containing a number of smaller diameter strands of

conductive material (*i.e.*, smaller diameter wires, again typically copper) that are twisted together to form the overall larger single conductor. Eldering ¶81.



Depending on the application, stranded conductors could have several advantages over solid core wire, including improved mechanical robustness and superior electrical characteristics. In particular, a stranded conductor is more flexible and less subject to cracking when bent, and the use of multiple strands can have better high-frequency performance due to reduced skin effect, where high-frequency currents flow close to the surface of the conductor. Eldering ¶82.

The asserted English translation of the German patent GmbH-866 is directed to “a data transfer cable consisting of at least n-pairs, n being an even-numbered multiple of 1, of *two isolated conductors* in each case, a shielding of the conductor pairs that consists of an electrically conductive material, and an outer cable sheath.” GmbH-866 2. A POSITA would understand that the “two isolated conductors” referred to here not only fails to teach or suggest the use of “twisted pairs,” it teaches away from them being twisted pairs because they are both physically and electromagnetically intertwined, not isolated. Eldering ¶83.

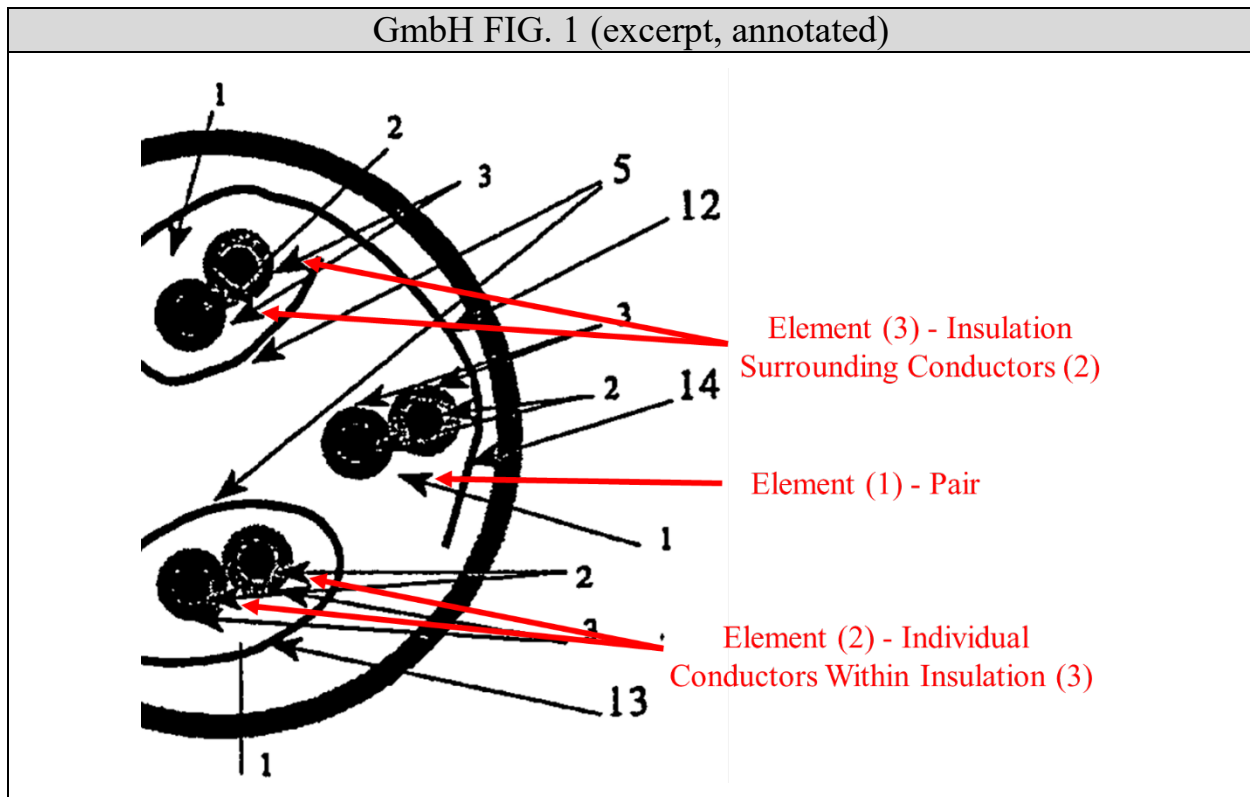
Additionally, as the plain language of the GmbH-866 translation explains:

A data transfer cable according to the invention, shown in Fig. 1, comprises four pairs 1, ***each consisting of two isolated, stranded copper conductors 2 or wires***. Optionally, these ***copper conductors or wires*** may comprise a conductor coating, for example, of tin. The effective diameter of said ***copper conductors or wires*** is in particular 0.4 to 0.66 mm. The ***copper conductors or wires*** preferably have an insulation 3 consisting of a thermoplastic polymer, in particular polyethylene, cell polyethylene, foam-skin polyethylene, skin-foam-skin polyethylene, polypropylene, or cell polypropylene.

GmbH-866 3; Eldering ¶83.

As the figures of GmbH-866 demonstrate, element (1) refers to a conductor pair, element (2) refers to each of the two individual conductors within a pair, and element (3) refers to the insulation surrounding each of the individual conductors.

Eldering ¶84.



Tellingly, the description of the cable here in GmbH-866 fails to provide any teaching that the pairs, element (1), in and of themselves are stranded. If GmbH-866 were in fact teaching that the conductor pairs were themselves stranded, a POSITA would expect some teaching that the two conductors, element (2), are twisted together within a given pair (1). Instead, GmbH-866 merely teaches that the ***individual*** copper conductors (2), in and of themselves, are stranded. Eldering ¶85.

Additionally, the description here in GmbH-866 goes on to describe the effective diameter of the individual copper conductors or wires as “0.4 to 0.66mm,” which a POSITA would understand to be typical for both stranded copper conductors or solid wires in a data transfer cable, as shown in element (2). In fact, a twisted pair

is not typically referred to as having a “diameter” at all. Eldering ¶86.

Likewise, the stranded copper conductor or wire is described as preferably having an insulation, element (3), which, as shown above in annotated FIG. 1, surrounds each of the individual stranded copper conductors or wires. Here again, the description does not teach or suggest that the insulation (3) along with the conductors (2) are twisted together or stranded in any way. If GmbH-866 were teaching twisted pairs—which it is not—a POSITA would expect GmbH-866 to teach that the conductors and their surrounding insulation are stranded together. But GmbH-866 contains no such teaching. Eldering ¶87.

Accordingly, a POSITA would understand GmbH-866 as teaching that each of the disclosed pairs (1) consists of two conductors, and that those conductors can be either stranded copper conductors or solid wires. Eldering ¶88.

- b. The Petition Mischaracterized GmbH-866’s Statement That The “Invention Can Also Comprise Just Two Pairs Of Stranded Conductors,” Which Also Fails To Disclose “Twisted Pairs.”

The second citation Petitioner based its speculative theory on likewise failed to disclose the separated twisted pairs limitations required by the Challenged Claims of the ’095 Patent. Pet 43 (“invention can also comprise just two pairs of stranded conductors”) (emphasis omitted). GmbH-866 teaches that all of the components of the cable (*i.e.*, not just the individual conductors (2) of a pair (1), but rather all of

the components) can be combined together during assembly of the cable and “stranded,” much like Roberts and Yanagita disclose that groups of untwisted, straight-line wires can all be bundled together as part of the cable assembly process, and the cable “bunching” taught in the ’095 Patent, discussed above. In fact, Petitioner and its expert admit that “*GmbH-866 describes twisting all the components of a cable about a central axis in the final cable assembly (also called ‘stranding’ or ‘cabling’). EX-1007, ¶¶190-194, ¶¶51-53.)*.” Pet. 49; Eldering ¶¶89-90.

In reality, GmbH-866 teaches “stranding or cabling” the components of the data transfer cable as follows:

The *stranding of the pairs 1 can consist in what is known as a helix stranding or in an SZ stranding (alternating, right-left stranding)*. In the case of an SZ stranding of the pairs, preferably, the spacing of the reversal points of the stranding direction can be dimensioned such that the transfer frequency corresponding to the spacing of the reversal points is above the defined upper frequency limit. . . . The structure described above is common to all embodiments of the data transfer cable according to the invention. However, it is possible not only, as shown, for four pairs 1 to be provided, but rather that a data transfer cable according to the invention can also comprise just two pairs of stranded conductors. Any desired n-pairs can be provided, n being an even-numbered multiple of 1.

GmbH-866 3-4. Here, as Petitioner and its expert admitted, GmbH-866 teaches that the pairs (1) are stranded together into a helical or SZ form, not that the individual conductors (2) of each pair are twisted together to form a twisted pair. Eldering

¶¶91-92.

Out of the entire paragraph cited above, Petitioner cited one out-of-context snippet from the second to last sentence to try to support its allegation that GmbH-866 teaches the missing separated twisted pairs limitations. Pet. 43 (“invention can also comprise just two pairs of stranded conductors” (emphasis omitted)). But a POSITA reading the full paragraph in context would understand that there is no such disclosure here. Eldering ¶93.

Petitioner and its expert admitted that the language preceding the relied on snippet teaches that the components of the cable, including all of the conductor *pairs* (1), can be stranded into either a helical or SZ configuration. Rather than teaching separated twisted pairs here, a POSITA would understand GmbH-866 as teaching that, although the data transfer cable is shown having four pairs (1) of conductors that are stranded as described, it can alternatively have any even multiple number of pairs (1) of conductors, for example, 2, 4, 6, 8, and so on. But there is nothing in that text that would indicate or suggest to a POSITA that the individual conductors (2) are twisted together to form “twisted pairs” as claimed. Eldering ¶94.

Accordingly, while GmbH-866 discusses individual conductors (2) being comprised of stranded copper conductors or solid wires, and teaches stranding all of components of the data transfer cable into helical and SZ bundles, it does not teach or suggest twisted pairs, or separating twisted pairs, as required by the '095 Patent

claims at issue. Eldering ¶95.

Therefore, GmbH-866 fails to teach or suggest the critical separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” elements required by the ’095 Patent claims at issue. Accordingly, for this reason alone, GmbH-866 fails to anticipate claim 27. Likewise, because claims 28 and 29 depend from independent claim 27, GmbH-866 fails to disclose each and every element of claims 28 and 29 and does not anticipate claims 28 and 29. Eldering ¶96.

C. Grounds 2, 4, 6, And 8 Fail To Overcome The Deficiencies In Petitioner’s Anticipation Arguments.

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.*, 773 F.3d at 1194. 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.*

Patent Owner has shown herein *supra* that the Petition failed to establish anticipation of claim elements 27.a and 27.b, which are substantively identical to claim elements 31.a and 31.b as follows:

'095 Patent Claim 27	'095 Patent Claim 31
27.a - “a first <i>twisted pair</i> of insulated conductors” and “a second <i>twisted pair</i> of insulated conductors”	31.a - “a <i>plurality of twisted pairs of insulated conductors</i> ”
27.b – “a configurable dielectric pair separator that <i>separates the first and second twisted pairs of conductors</i> , the configurable dielectric pair separator being substantially flat”	31.b – “a configurable dielectric <i>pair separator disposed between at least two of the plurality of twisted pairs of insulated conductors</i> ”

In Grounds 2, 4, 6, and 8, Petitioner relied upon the same exact disclosures in the primary references that failed to disclose or anticipate claim elements 27.a and 27.b (by failing to disclose or teach separating “twisted pairs”) to show that substantively identical claim elements 31.a and 31.b were obvious, without relying on any of the secondary references or explaining why those elements (i.e., separating “twisted pairs”) are obvious. Nor did Petitioner suggest any further substitution of components involving the secondary references or describe why a POSITA would have been motivated to make a substitution in order to supplement those deficient anticipation arguments in any way. Accordingly, the obviousness challenges in Grounds 2, 4, 6, and 8 must fail as well.

1. *Regarding Ground 2, The Combination Of Roberts And One Or More Of Jachimowicz And Gingue Fails To Render Claims 30-33 Obvious.*

Regarding independent claim 31, the only argument the Petition presented as to why the alleged combination of Roberts and one or more of Jachimowicz (EX-

1014) and Gingue (EX-1013) render elements 31.a and 31.b obvious were the Petition's anticipation arguments regarding claim elements 27.a and 27.b with respect to Roberts, as follows:

Elements 31.pre, 31.a (, [sic] 31.b, 31.d, and 31.e are like claim elements 27.pre, 27.a, 27.b., 27.c, and 27.d, respectively. Therefore Roberts discloses these elements for the same reasons as explained above. *Supra*, VIII.B; EX-1007, ¶¶108-132, ¶¶159-161, ¶¶164-166.

Petition 39. Therefore, the Petition relied exclusively on Roberts to allegedly disclose the twisted pairs in claim elements 31.a and 31.b for the same reasons the Petition unsuccessfully argued that Roberts allegedly discloses claim elements 27.a and 27.b, respectively.

Tellingly, Petitioner did not rely on Jachimowicz or Gingue for any of these missing twisted pair claim elements required by the '095 Patent claims at issue, nor did it provide any additional argument regarding why Jachimowicz or Gingue could render those elements obvious. Instead, Petitioner relied on Jachimowicz and Gingue only for element 31.c ("the configurable dielectric pair separator including a substantially flat dielectric tape formed of a foamed polymer"). Pet. 39. But Patent Owner demonstrated above how Roberts fails to anticipate claim 27. And Petitioner did not even attempt to establish how the alleged combination could teach each and every one of the claim elements of independent claim 31. Accordingly, Petitioner's alleged combination of Roberts with one or more of Jachimowitz or Gingue cannot

render independent claim 31 obvious.

Likewise, the remaining dependent claims 30, 32 and 33, which all depend from either independent claim 27 or 31, all rely on Petitioner's insufficient Roberts anticipation theory:

- Claim 30 – “Roberts teaches all the elements of independent claim 27, as explained in Ground 1. EX-1007, ¶¶108-140. Roberts does not disclose ‘wherein the configurable dielectric pair separator comprises a foamed polymer tape,’ as required by claim 30.” Petition 33.
- Claim 32 – “Roberts teaches claim 32, for the same reasons explained above with respect to claim 28. *Supra*, §VIII.B.7; EX-1007, ¶¶167-169, ¶¶133-138.” Petition 39.
- Claim 33 – “Roberts teaches this, for the same reasons explained above with respect to claim element 27.e. *Supra*, §VIII.B.6, EX-1007, ¶170, ¶¶131-132.” Petition 40.

The Petition failed to demonstrate how Roberts anticipates independent claim 27 or how the combination of Roberts with one or more of Jachimowicz and Gingue could render independent claim 31 obvious. Therefore, because Petitioner relied on Jachimowicz and Gingue only to allegedly teach a “foamed polymer tape” and “the benefits of using such a foamed polymer in data communications cables as an insulating/isolation member” (Pet. 31), which failed to address the issues with claims 27 and 31 discussed herein *supra*, the Petition also failed to establish how the alleged combination could render dependent claims 30, 32 and 33 obvious.

2. *Regarding Ground 4, The Combination Of GmbH-866 And One Or More Of Jachimowicz And Gingue Fails To Render Claims 30-33 Obvious.*

Regarding independent claim 31, the only argument the Petition presented as to why the alleged combination of GmbH-866 and one or more of Jachimowicz and Gingue render elements 31.a and 31.b obvious were the Petition's anticipation arguments regarding claim elements 27.a and 27.b with respect to GmbH-866, as follows:

Elements 31.pre, 31.a, 31.b, 31.d and 31.e are like claim elements 27.pre, 27.a, 27.b., 27.c, and 27.d, respectively. EX-1007, ¶¶221-223, ¶¶226-228. Therefore GmbH-866 discloses these elements for the same reasons as explained above. *Supra*, §X.B; ¶¶221-223, ¶¶226-228, ¶¶171-196.

Petition 57. Therefore, the Petition relied exclusively on GmbH-866 to allegedly disclose the twisted pairs in claim elements 31.a and 31.b for the same reasons the Petition unsuccessfully argued that GmbH-866 allegedly discloses claim elements 27.a and 27.b, respectively.

Tellingly, Petitioner did not rely on Jachimowicz or Gingue for any of these missing twisted pair claim elements required by the '095 Patent claims at issue, nor did it provide any additional argument regarding why Jachimowicz or Gingue could render those elements obvious. Instead, Petitioner relied on Jachimowicz and Gingue only for element 31.c ("the configurable dielectric pair separator including a substantially flat dielectric tape formed of a foamed polymer"). Pet. 57-58. But

Patent Owner demonstrated above how GmbH-866 fails to anticipate claim 27. And Petitioner did not even attempt to establish how the alleged combination could teach each and every one of the claim elements of independent claim 31. Accordingly, Petitioner's alleged combination of GmbH-866 with one or more of Jachimowitz or Gingue cannot render independent claim 31 obvious.

Likewise, the remaining dependent claims 30, 32 and 33, which all depend from either independent claim 27 or 31, all rely on Petitioner's insufficient GmbH-866 anticipation theory:

- Claim 30 – “GmbH-866 teaches all the elements of independent claim 27, as explained in Ground 3 above. EX-1007, ¶205, ¶¶171-196. GmbH-866 does not teach that the separator comprises a foamed polymer tape, as required by claim 30.” Petition 53.
- Claim 32 – “GmbH-866 teaches claim 32, for the same reasons explained above with respect to claim 28. *Supra*, §X.C; EX-1007, ¶¶229-230, ¶¶197-202.” Petition 58.
- Claim 33 – “GmbH-866 teaches this, for the same reasons explained above with respect to claim element 27.e. *Supra*, §X.B.6; EX-1007, ¶¶231-232, ¶¶195-196.” Petition 58.

The Petition failed to demonstrate how GmbH-866 anticipates independent claim 27 or how the combination of GmbH-866 with one or more of Jachimowicz and Gingue could render independent claim 31 obvious. Therefore, because Petitioner relied on Jachimowicz and Gingue only to allegedly teach a “foamed polymer tape” and “the benefits of using such a foamed polymer in data

communications cables as an insulating/isolation member” (Pet. 52-53), which failed to address the issues with claims 27 and 31 discussed herein *supra*, the Petition also failed to establish how the alleged combination could render dependent claims 30, 32 and 33 obvious.

3. *Regarding Ground 6, The Combination Of GmbH-866 And One Or More Of Roberts, Jachimowicz, And Gingue Fails To Render Claims 27-33 Obvious.*

As shown *supra*, Patent Owner has demonstrated that GmbH-866 fails to anticipate claims 27-29 (Ground 3). Patent Owner has also established that GmbH-866 in combination with one or more of Jachimowicz or Gingue fails to render claims 30-33 obvious (Ground 4). In Ground 6, Petitioner conclusorily argued, without support, that:

If GmbH-866 is found to not disclose “wherein the configurable dielectric pair separator, the first twisted pair of insulated conductors and the second twisted pair of insulated conductors are twisted about a common central axis to form a twisted pair cable” (elements [27.e], [31.d]), claims 27-33 would have been obvious for all the reasons identified in Grounds 3 and 4, further in view of one or more of Roberts and Jachimowicz.

Pet. 61. Petitioner also conclusorily argued, without support, that Roberts and Jachimowicz allegedly teach elements 27.e and 31.d, namely twisting the components of a cable about a common axis to form the final assembled cable. Pet. 61-62. And without even proposing any substitution or modification of components—and accordingly any discussion of why a POSITA would be motivated

to make such component substitutions or modifications—Petitioner conclusorily argued, without support, that “[a] POSITA would have been motivated, with a reasonable expectation of success, *to twist the components of the GmbH-866 cable*, including the twisted pairs and the partial shieldings 11, 12 about a common axis to obtain these known and predictable benefits.” Pet. 63.

But Petitioner’s arguments regarding Ground 6 and the “cable twisting” claim elements 27.e and 31.d do *nothing* to remedy the deficiencies in Petitioner’s unsupported theories regarding claim elements 27.a, 27.b, 31.a, and 31.b with respect to GmbH-866 and Grounds 3 and 4. In particular, Petitioner’s Ground 6 theory did not even attempt to establish why the alleged combination teaches or suggests missing claim elements 27.a-b or 31.a-b, other than what it argued in Grounds 3 and 4.

Because Ground 6 fails to substitute *any* components in the GmbH-866 cable, nor explain why a POSITA would be motivated to combine those components, Ground 6 fails to establish how the combination of GmbH-866 in combination with one or more of Roberts, Jachimowicz and Gingue could render claims 27-33 obvious for the same reasons stated herein *supra* regarding Grounds 3 and 4. For this reason, and for the reasons stated herein *supra* regarding Grounds 1-4, Petitioner failed to establish how GmbH-866 in combination with one or more of Roberts, Jachimowicz or Gingue could possibly render claims 27-33 obvious.

4. *Regarding Ground 8, The Combination Of Yanagita And One Or More Of Jachimowicz And Gingue Fails To Render Claims 30-33 Obvious.*

Regarding independent claim 31, the only theory the Petitioner presented as to why the alleged combination of Yanagita and one or more of Jachimowicz and Gingue render elements 31.a and 31.b obvious was the Petitioner's anticipation theory regarding claim elements 27.a and 27.b regarding Yanagita, as follows:

These elements are like claim elements 27.pre, 27.a, 27.b., 27.c, and 27.d, respectively. EX-1007, ¶¶291-293, ¶¶296-298. Therefore Yanagadia discloses these elements for the same reasons as explained above in Ground 7. *Supra*, §XIV.B. EX-1007, ¶291-293, ¶¶296-298, ¶¶254-270.

Petition 76. Therefore, the Petitioner relied exclusively on Yanagita to allegedly disclose the twisted pairs in claim elements 31.a and 31.b for the same reasons why the Petitioner argued that Yanagita allegedly discloses claim elements 27.a and 27.b, respectively.

Tellingly, Petitioner did not rely on Jachimowicz or Gingue for any of these missing twisted pair claim elements required by the '095 Patent claims at issue, nor did it provide any additional argument regarding why Jachimowicz or Gingue could render those elements obvious. Instead, Petitioner relied on Jachimowicz and Gingue only for element 31.c ("the configurable dielectric pair separator including a substantially flat dielectric tape formed of a foamed polymer"). Pet. 76. But Patent Owner demonstrated above how Yanagita fails to anticipate claim 27. And

Petitioner did not even attempt to establish how the alleged combination could teach each and every one of the claim limitations of independent claim 31. Accordingly, Petitioner's alleged combination of Yanagita with one or more of Jachimowitz or Gingue cannot render independent claim 31 obvious.

Likewise, the remaining dependent claims 30, 32 and 33, which all depend from either independent claim 27 or 31, all rely on Petitioner's alleged Yanagita anticipation theory:

- Claim 30 – “Yanagida teaches all the elements of independent claim 27, as explained in Ground 7 above. EX-1007, ¶278; ¶¶254-270. Yanagida does not teach a separator that comprises a foamed polymer tape, as required by claim 30.” Petition 73.
- Claim 32 – “Yanagida teaches claim 32, for the same reasons explained above with respect to claim 28 in Ground 7. *Supra*, §XIV.C; EX-1007, ¶¶299-300; ¶¶271-275.” Petition 76.
- Claim 33 – “If the claim phrase “separator is arranged within the jacket to form at least two grooves” is construed to include configurations where the separator is straight in a radial cross section, then Yanagida teaches this. *Supra*, XIV.B.6. EX-1007, ¶¶301-302; ¶¶269-270.” Petition 77.

The Petitioner failed to demonstrate how Yanagita anticipates independent claim 27 or how the combination of Yanagita with one or more of Jachimowicz and Gingue could render independent claim 31 obvious. Therefore, because Petitioner relied on Jachimowicz and Gingue only to allegedly teach a “foamed polymer tape” and “the benefits of using such a foamed polymer in data communications cables as

an insulating/isolation member” (Pet. 72), which admittedly failed to address the issues with claims 27 and 31 discussed herein *supra*, the Petitioner also failed to establish how the alleged combination could render dependent claims 30, 32 and 33 obvious.

D. Regarding Ground 5, The Combination Of Roberts And One Or More Of GmbH-866, Jachimowicz, And Gingue Cannot Render Claims 27-33 Obvious.

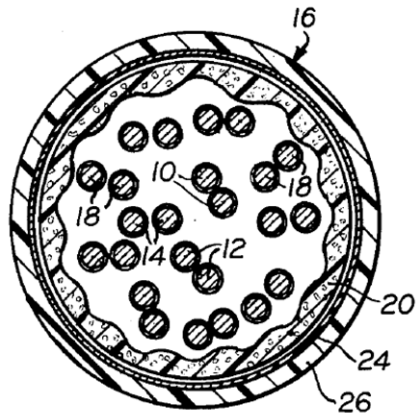
To try to make up for the deficiencies in its Roberts based anticipation theory, Petitioner attempted to hedge its bet regarding the separated “twisted pair” limitations of claims 27.a and 31.a by arguing that:

If Roberts is found to not disclose first and second (or a plurality of) twisted pairs of insulated conductors (elements [27.a], [31.a]), use of twisted pairs of insulated conductors in a cable like that taught by Roberts would have been obvious for all the reasons identified in Grounds 1 and 2, further in view of one or more of GmbH-866 and Jachimowicz.

Pet. 59. But as shown above regarding Grounds 3 and 4, GmbH-866 also fails to teach or suggest the separation of “twisted pairs” as described and claimed in the ’095 Patent. As a result, any combination of Roberts and GmbH-866 likewise fails to teach or suggest the separation of twisted pairs claim limitations at issue. Eldering ¶¶97-98.

Jachimowicz discloses a different crosstalk solution that entails locking multiple twisted pairs together in a telephone cable with nothing separating them:

FIG. 1.



The pairs 10, 12 and 14 are located centrally in a cable unit 16; and there are other pairs of conductors, each indicated by the reference character [sic] 18 located in a circle around the three pairs 10 14. Each of the pairs 18 is twisted and all of the pairs in the unit 16 have a different lay to their twist.

Jachimowicz 2:35-40.

Each pair within the, unit 16 has a different lay to its twist so that *crosstalk separation is obtained* between the pairs.

Jachimowicz 3:4-6

To *lock the pairs 10, 11, 14 and 18 together* and prevent lay distortion when the bundle is handled in manufacturing processes or at installation, a thin jacket of foamed polyethylene 20 is extruded over the bundle. *The pairs can be held together in the bundle* in other ways, if desired, as by applying a tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene, or other material.

Jachimowicz 2:46-53.

The pairs 10, 12, 14 and 18 are locked in reference to each other by means of the foamed jacket 20 or foamed tape, previously described. *The interstices between the pairs in the unit 16 are preferably left with*

only air within them.

Jachimowicz 3:50-56; Eldering ¶99. Therefore, Jachimowicz repeatedly teaches that twisted pairs are bunched together without any separator at all between them, as described above and shown in FIG. 1. This is diametrically opposed to the crosstalk solution taught by the '095 Patent, which separates twisted pairs. Eldering ¶100.

Petitioner resorted to Jachimowicz to establish that twisted pairs were known in the art. However, simply finding the claimed elements scattered throughout the prior art and using the claimed invention as a roadmap to assemble them is simply not enough to show obviousness. The Supreme Court has explained that 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 Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007); *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)). Instead, it is “necessary . . . to determine whether there was an apparent *reason to combine the known elements in the fashion claimed* by the

patent at issue.” *KSR Int’l Co.*, 550 U.S. at 418.

What Petitioner failed to provide is any objective motivation as to why a POSITA would have modified Roberts to “use twisted pairs” (Pet. 60), let alone provide any teaching or suggestion in Roberts or Jachimowicz as to why a POSITA would have been motivated to do so.⁸ Pet. 60; Eldering ¶101. The Federal Circuit has consistently “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).

1. Roberts Already Provided A Solution To The Crosstalk Problem Without The Use Of Twisted Pairs.

When a primary prior art reference already provides a solution to the problem

⁸ Although Petitioner failed to explain what components are involved in its alleged substitution or explain in any way how Roberts would actually “use twisted pairs” (Pet. 60), Patent Owner assumes Petitioner is suggesting that each of the individual straight-line conductors in conductor groups (14) and (16) would be substituted with a twisted pair, as alleged in Petitioner’s rebutted anticipation arguments with respect to Ground 1.

solved by the challenged patent, there would be no motivation to modify that primary reference to include an additional or redundant solution. *See, e.g., In re Anova Hearing Labs, Inc.*, 809 Fed. Appx. 840, 843 (Fed. Cir. 2020) (“The Board also does not explain why a person of ordinary skill in the art would be motivated to modify Brown, which already includes vents, to address occlusion effect.”); *South-Tek Sys. v. Engineered Corrosion Sols., LLC*, 748 Fed. Appx. 1003, 1007 (Fed. Cir. 2018).

Roberts is entitled “Telephone Cable With Improved Crosstalk Properties” (Roberts cover), and teaches, as discussed above, a single cable that separates groups of wires transmitting in one direction from groups of wires receiving/transmitting in the opposite direction with a metallic shield:

In such an arrangement of a cable, *those conductors on one side of the shield may all be used for transmitting carrier frequencies in one direction, while the returned channels for transmission in the opposite direction will be applied to the conductors on the other side of the shield. The shield has the effect of reducing so called ‘near end’ crosstalk* since the weak attenuated currents coming in at a repeater point are in a compartment of the cable electrically shielded from a large amplified current entering the conductors in the other compartment of the cable.

Roberts 1:13-31.

Electrical shielding efficiency of the cable structure disclosed by the instant invention is improved at about the same rate that crosstalk coupling would degrade normal crosstalk performance in otherwise unshielded cables. . . . Such an improvement . . . would in fact achieve about the same crosstalk performance characteristics as would be obtained using separate cables, one such cable transmitting in one direction and the other cable transmitting in an opposite direction. This

improved performance is achieved at much less cost.

Roberts 13:10-29.

In summary, the instant disclosure has shown the advantages of dividing a cable core into at least two groups by a metal foil. The two groups thus formed are used for transmission, one group transmitting in one direction and the other group transmitting in an opposite direction. ***By screening or shielding one transmitting group of insulated electrical conductors, improved nearend crosstalk properties are realized.***

Roberts 13:30-36; Eldering ¶102. Accordingly, Roberts already provides an effective solution to the problem of crosstalk in a communications cable. As shown above, that solution was separating the individual straight-line conductors of a non-twisted pair by placing a conductive (*i.e.*, metallic) shield between them. Since Roberts already provides a solution to the crosstalk problem solved by the '095 Patent, there would be no motivation to modify Roberts to include the additional and redundant twisted pairs of Jachimowicz, that are part of the redundant Jachimowicz crosstalk solution. Eldering ¶103; *see In re Anova Hearing Labs*, 809 Fed. Appx. at 843; *South-Tek Sys.*, 748 Fed. Appx. at 1007.

2. *Petitioner Failed To Provide A Motivation To Combine “Twisted Pairs” With Roberts.*

As discussed above, twisted pairs were known in the art long before the priority date of any of the asserted prior art references, including Roberts. Yet despite twisted pairs being known, Roberts still chose a **different** solution to the

crosstalk problem—one that did not utilize twisted pairs. And Petitioner failed to provide a single citation to any teaching or suggestion regarding why a POSITA would have been motivated to modify the Roberts crosstalk solution by replacing individual straight-line conductors separated by a metallic shield with twisted pairs of conductors separated by a shield. Eldering ¶104.

Instead, Petitioner merely relied upon a conclusory and boilerplate theory that twisted pairs were “common and conventional,” and that it would have been “an obvious and routine modification” to use them in Roberts that “would have had a reasonable expectation of success.” Pet. 60-61. Petitioner’s superficial theory that a POSITA could have used twisted pairs in combination with Roberts based on improper hindsight reasoning failed to provide any reason why a POSITA would have been motivated to make such combination at the time. The Federal Circuit has long explained how such rationales are insufficient. *See, e.g., Ex parte Gerlach*, 212 U.S.P.Q. 471 at 471 (P.T.A.B. 1980) (“There is nothing in the statutes or the case law which makes ‘that which is within the capabilities of one skilled in the art’ synonymous with obviousness.”); *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). In any event, a POSITA would not have been so motivated.

Eldering ¶105.

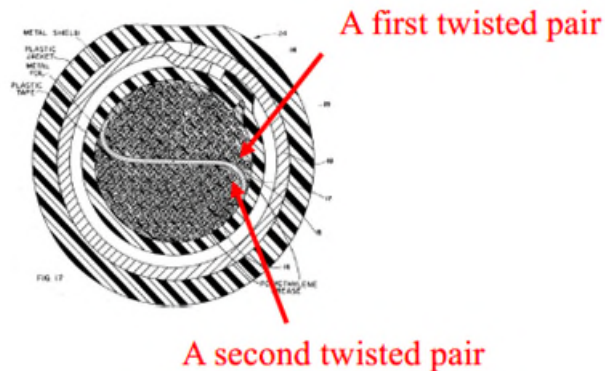
Petitioner’s only theory that a POSITA would be motivated to use twisted pairs in Roberts is that “[t]wisted pairs were known to provide the electrical benefits of lower crosstalk and decreased unbalanced mutual capacitance, along with the mechanical benefits of ensuring the individual wires in a pair stay together.” Pet. 60; *see also* EX-1007 ¶238. But regarding such alleged “electrical benefits,” lowering crosstalk and decreasing unbalanced mutual capacitance is precisely the problem addressed in and the solution provided by Roberts, which is separating straight-line conductor pairs with a metallic shield to achieve those exact improvements. Roberts Abstract (“Measurements between pairs, divided by this plastic-coated metal foil, of unwanted energy transferred from one conductor to another by means of mutual inductive, capacity, or conductive coupling (crosstalk), shows greatly improved properties over undivided cable pairs or divided cable pairs of prior art.”). At the time of the Roberts’ invention, twisted pairs were known, and yet Roberts chose to solve the crosstalk problem in a different way without using twisted pairs. Eldering ¶106.

Other than highlight the known benefits of twisted pairs, Petitioner failed to provide any additional motivation regarding why a POSITA would have modified the Roberts crosstalk solution by replacing each of its straight-line conductors with twisted pairs of conductors. Nor did Petitioner explain how or why substituting

individual straight-line conductors in Roberts with twisted pairs would provide any “electrical benefit” or improvement over the crosstalk solution Roberts already provided. Eldering ¶107.

Regarding the alleged “mechanical benefits” of “*ensuring the individual wires in a pair stay together*,” Petitioner’s position literally makes no sense, since the crosstalk solution in Roberts is diametrically opposed to or the antithesis of the use of twisted pairs in this regard. The solution proposed by Roberts is to divide and separate the conductors of a given transmit and receive pair. Roberts Abstract (“By dividing electrical conductor telephone pairs within a telephone cable structure with plastic-coated metal foil, the crosstalk properties are so vastly improved that a greater spacing between repeaters can be designed into a telephone cable system, as compared to a cable system employing prior art divided or undivided cable pairs.”). Petitioner’s alleged Roberts combination would require that the transmit and receive wire pairs (14, 16), which Roberts teaches are two straight-line conductors on opposite sides of the metallic shield, be substituted with two twisted pairs of conductors on opposite sides of the shield, as Petitioner alleged in Ground 1. Eldering ¶108.

FIG. 17



Therefore, rather than “ensuring the individual wires in a pair stay together” as Petitioner alleged, Roberts teaches separating the wires in a pair. Accordingly, Petitioner’s alleged motivation to combine by “ensuring the individual wires in a pair stay together” makes no sense whatsoever in the Roberts solution. Aside from this nonsensical argument, Petitioner failed to explain how or why substituting individual straight-line conductors in Roberts with twisted pairs would provide any additional “mechanical benefit” or improvement over the crosstalk solution Roberts already provided. Eldering ¶109.

3. *A POSITA Would Have Been Discouraged From Replacing The Straight-Line Conductors In Roberts With Twisted Pairs Because It Would Alter The Principle Of Operation In Roberts.*

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*, 795 Fed. Appx. at 834. 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).

In addition to the issues already addressed above regarding the alleged combination of Roberts with the twisted pairs of Jachimowicz (and alleged, but nonexistent twisted pairs of GmbH-866), a POSITA would further be discouraged from combining twisted pairs with Roberts for a number of reasons, such as because of how the alleged substitution would alter the principle of operation in Roberts. *Eldering* ¶110; *Plas-Pak Indus. v. Sulzer Mixpac AG*, 600 Fed. Appx. 755, 758 (Fed. Cir. Jan. 27, 2015) (“[C]ombinations that change the ‘basic principles under which the [prior art] was designed to operate’ ... may fail to support a conclusion of obviousness.”) (quoting *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959)).

For example, replacing the individual straight-line conductors with twisted pairs would double the number of wires in the Roberts cable. This alone would increase the overall cross sectional area of the cable to nearly double that of the original Roberts cable. Doubling the number of wires and the overall cable cross

section would significantly increase the amount of materials needed to construct a cable of a given length, thereby increasing the cost of the modified cable over the original Roberts cable. This would eviscerate the advantages that the Roberts cable already offered, namely a space-saving, economical cable for two-way transmission which utilized a single wire in each transmit direction for a given transmit-receive pair, and a metallic shield between them to control crosstalk. Eldering ¶111.

The increased cable cross section and resulting increase in diameter also would lower the flexibility of the overall cable, reducing the number of applications it could be utilized in, either because of space or turn radius requirements. Eldering ¶112.

Furthermore, switching from a single wire transmitting in each direction to a twisted pair transmitting in each direction would require a far more complex cable termination solution involving double the number of wire terminations. Again, this would increase the cost and complexity associated with using such a cable solution, which would discourage a POSITA from designing such a cable in the first instance. Eldering ¶113.

For all of these reasons, and for the reasons stated herein *supra* with respect to Grounds 1-4, Petitioner failed to establish how Roberts in combination with one or more of GmbH-866, Jachimowicz or Gingue could render claims 27-33 obvious. Eldering ¶114.

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Respectfully submitted,

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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 (13,998 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.

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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 21, 2023, on the following:

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