

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

**SUPPLEMENTAL DECLARATION OF DR. CHARLES A. ELDERING IN
SUPPORT OF PATENT OWNER RESPONSE**

CommScope v. Belden
IPR2023-01062

Belden EX-2007

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I. INTRODUCTION

117. I, Dr. Charles A. Eldering, submit this Supplemental Declaration in Support of the Patent Owner Response to state my opinions on the matters described below. In September 2023, I prepared a first Declaration in Support of Patent Owner Preliminary Response (“First Declaration”). EX-2001 ¶¶1-116.

118. I have been retained on behalf of Patent Owner, Belden Inc. (“Belden”), as an independent expert for the above-identified *inter partes* review (“IPR”) proceeding involving U.S. No. Patent 6,570,095 B2 (the “’095 Patent”).

119. Petitioner, CommScope Technologies LLC (“CommScope”), challenges claims 27-33 (the “Challenged Claims”) of the ’095 Patent.

120. I have been asked to, and have, reviewed the Expert Declaration of Kenneth Cornelison (“Cornelison” or “Mr. Cornelison”) in which Cornelison has asserted and offered opinions that all of the Challenged Claims are anticipated and/or obvious in view of the following prior art references: U.S. Patent No. 3,622,683 (“Roberts”) (EX-1009), German Patent DE 297 19 866 U1 (“GmbH-866”) (EX-1010), Japanese Patent Publication S43-15474 (“Yanagita”) (EX-1012), U.S. Patent No. 5,670,748 (“Gingue”) (EX-1013), and U.S. Patent No. 3,894,172 (“Jachimowicz”) (EX-1014) (collectively, the “Petitioner Prior Art”).

121. Petitioner sets forth eight different grounds, including three anticipation grounds and five obviousness grounds.

122. The anticipation grounds are as follows:

- a. Ground 1 – Claims 27-29 are anticipated by Roberts
- b. Ground 3 – Claims 27-29 are anticipated by GmbH-866
- c. Ground 7 – Claims 27-29 are anticipated by Yanagita

123. The obviousness grounds are as follows:

- a. Ground 2 – Claims 30-33 are obvious in view of Roberts and one or more of Jachimowicz and Gingue
- b. Ground 4 – Claims 30-33 are obvious in view of GmbH-866 and one or more of Jachimowicz and Gingue
- c. Ground 5 – Claims 27-33 are obvious in view of Roberts and one or more of GmbH-866, Jachimowicz and Gingue
- d. Ground 6 – Claims 27-33 are obvious in view of GmbH-866 and one or more of Roberts, Jachimowicz and Gingue
- e. Ground 8 – Claims 30-33 are obvious in view of Yanagita and one or more of Jachimowicz and Gingue

124. I have been asked by Belden to prepare this Supplemental Declaration setting forth my additional comments and opinions on whether the Challenged Claims would have been anticipated and/or obvious to a person of ordinary skill in the art at the time of the invention of the '095 Patent (1999) in light of the Petitioner Prior Art.

125. For the reasons that follow and previously presented in my First Declaration (EX-2001), I respectfully disagree with Mr. Cornelison. Instead, it is my opinion that the proposed grounds do not render any of the Challenged Claims

anticipated or obvious. This Declaration sets forth my additional opinions and the bases, reasons, and evidence relied upon in forming those opinions.

II. QUALIFICATIONS AND BACKGROUND

126. My qualifications and background, and my curriculum vitae (Appendix A), are set forth in my First Declaration (EX-2001).

III. MATERIALS CONSIDERED

127. In forming my opinions expressed below, in addition to my own knowledge and experience based upon my work in the field of cable technology as described below, I have considered the documents provided to me by Belden's counsel ("counsel"):

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

EXHIBIT	DESCRIPTION
	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
EX-1021	U.S. Patent No. 1,956,730
EX-1022	U.S. Patent No. 3,803,340 (Jachimowicz-340)
EX-1023	Canadian Patent Application No. 2,058,046
EX-1024	U.S. Patent No. 4,262,164
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
EX-1029	G.F. Moore, Electric Cable Handbook, BICC Cables (3d. ed. 1997)
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
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

EXHIBIT	DESCRIPTION
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
EX-1039	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: March 3, 2004 Non-Final Office Action
EX-1040	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Terminal Disclaimer
EX-1041	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: May 18, 2004 Amendments
EX-1042	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: June 17, 2004 Final Office Action
EX-1043	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: September 20, 2004 Request for Continued Examination
EX-1044	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Sept. 9, 2005 Amendment
EX-1045	Excerpt of Inter Partes Reexamination No. 95/000,474 of U.S. Patent No. 6,570,095: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceeding
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
EX-1047	Excerpt of Inter Partes Reexamination No. 95/000,475 of U.S. Patent No. 7,179,999: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceedings
EX-1048	U.S. Patent No. 5,814,768
EX-1049	U.S. Patent No. 6,037,546
EX-1050	Excerpt of Inter Partes Reexamination No. 95/000,474 of U.S. Patent No. 6,570,095: Jan. 11, 2010 Third Party Requester's Comments to Patent Owner's Response
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

EXHIBIT	DESCRIPTION
	(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
EX-2003	U.S. Patent No. 10,170,220
EX-2004	Deposition Transcript of Kenneth Cornelison, March 6, 2024
EX-2005	U.S. Patent No. 4,800,236
EX-2006	U.S. Patent No. 4,340,771

IV. RELEVANT LEGAL STANDARDS

128. In preparing this declaration and forming my opinions, I am relying on certain legal principles that counsel explained to me.

129. I have reviewed Mr. Cornelison’s summaries of the Relevant Legal Principles with respect to claim construction, anticipation, and obviousness. I do not disagree with those summaries.

A. LEVEL OF ORDINARY SKILL IN THE ART

130. I understand that a person of ordinary skill in the art is determined by considering (1) the type of problems encountered in the art, (2) prior art solutions to those problems, (3) the rapidity with which innovations are made, (4) the sophistication of the technology, and (5) the educational level of active workers in

the field.

131. I understand that I must evaluate the '095 Patent and the Petitioner Prior Art from the perspective of a person of ordinary skill in the art. That is, the '095 Patent and the Petitioner Prior Art must be evaluated through the eyes of a person with ordinary skill in the relevant art at the time of the invention of this patent (“POSITA”).

132. I understand that the earliest application to which the '095 Patent claims priority was an application (No. 09/257,844) filed on February 25, 1999. I have been asked to assume that the invention date of the Challenged Claims is February 25, 1999 (*i.e.*, the time of the invention).

133. In my First Declaration, I set forth my opinion regarding the education and experience of a POSITA. EX2001 ¶¶24-27.

134. My opinions in this Declaration are based on the perspective of a person of ordinary skill in the art in the 1999 timeframe. This is true even if the testimony is stated in the present tense.

V. CLAIM CONSTRUCTION

135. In my First Declaration, I explained that a POSITA would understand the claimed “twisted pair[s]” to mean “two insulated conductors twisted together” as shown in FIG. 4 of the '095 Patent. EX-2001 ¶¶40-45.

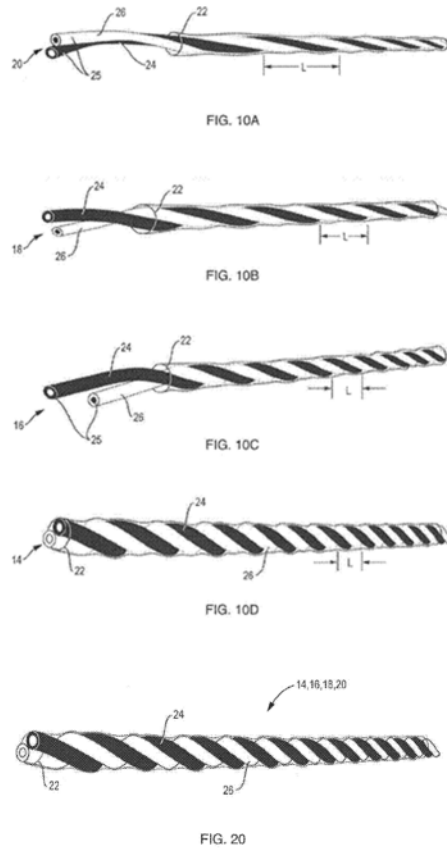
136. In my First Declaration, I identified several prior art references that

illustrate how twisted pairs constitute two insulated conductors twisted together in a helix. EX-2001 ¶44.

137. In addition to those prior art references, U.S. Patent No. 10,170,220 (“Cornelison ’220”) (EX-2003) to Petitioner’s expert, Kenneth E. Cornelison, teaches that “[t]he first and the second insulated conductors, of each pair, are twisted with one another to form a twisted pair and each of the twisted pairs has a different lay length from one another.” Cornelison ’220 Abstract, *see also* 5:54-58, 8:15-19 (FIG. 20 is “a pair of insulated conductors twisted together to form a twisted pair”). Cornelison ’220 states that “a lay length is traditionally defined as the axial distance necessary for one pair of insulated conductors to complete a full 360 degree of rotation when twisting about one another.” Cornelison ’220 2:27-29.

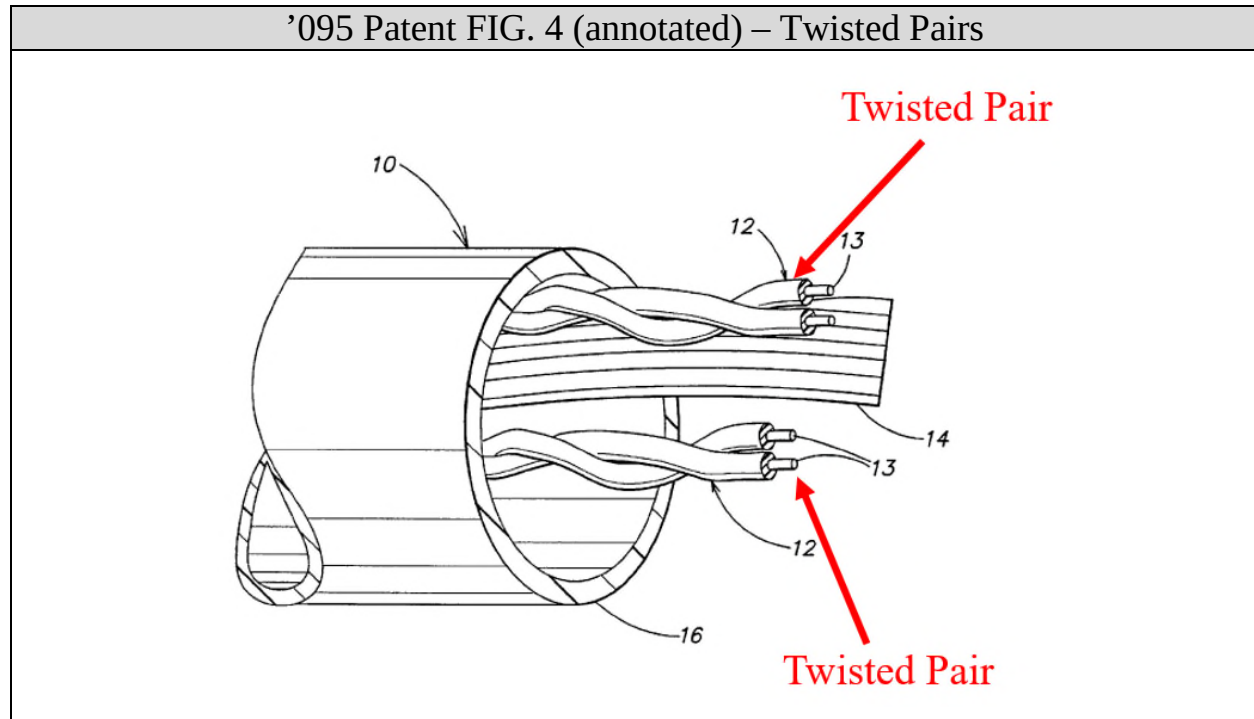
138. Cornelison ’220 illustrates the following examples of twisted pairs:

Cornelison '220 (FIGS. 10A-10D, 20) - Depicting "Twisted Pairs"



139. As I stated in my First Declaration, the specification of the '095 Patent provides the following definition of twisted pairs: "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; First Declaration ¶40.

140. 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; First Declaration ¶41.



141. As shown in FIG. 4, the two, individual conductors in each pair (*i.e.*, each set of two separately insulated wires) are twisted together in a helix around one another. First Declaration ¶42.

142. The '095 Patent further teaches that 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:

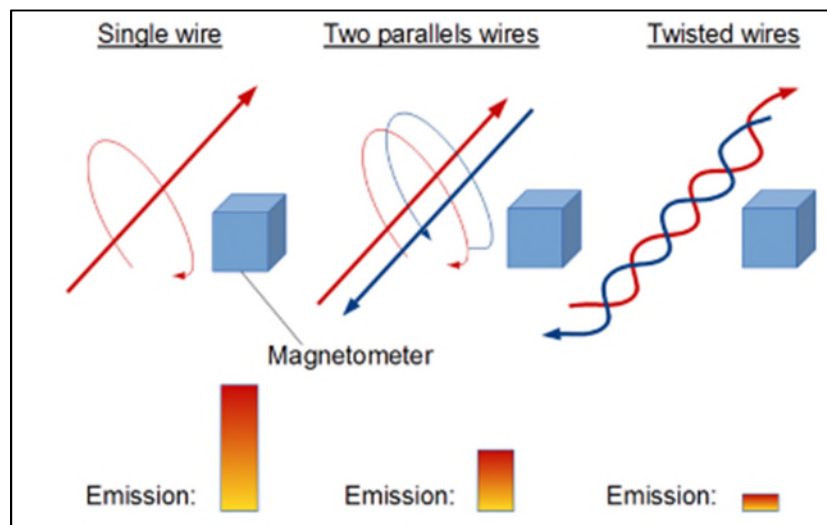
This embodiment of the invention may also be used in conjunction with a lessening of the twist lays requirements for the twisted pairs, to provide cable having a same amount of isolation between twisted pairs as a cable with

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.
143.

'095 Patent 7:62-8:2.

144. The twisting referred to in the specification results in the two insulated wires periodically crossing over each other to create the sections (*i.e.*, the “lay,” as determined by the separation of the crossover points) having periodic reversals in their electromagnetic fields. These periodic field reversals work to balance out electromagnetic radiation of the twisted conductor pair, and are what give the twisted wire pair its robustness against electromagnetic interference.

145. The specific structure of a twisted pair, namely two insulated conductors twisted together around one another, is what helps contain the electromagnetic field of the twisted pair, as shown in the following illustration:



146. As this figure demonstrates, the periodic field reversals caused by the

two conductors of a twisted pair being twisted together around one another work to balance out the overall electromagnetic radiation of the twisted pair, such that electromagnetic emission from the twisted pairs, as measured through the strength of the resulting magnetic field, is less than that of either a single conductor wire or two parallel conductor wires.

147. A POSITA would understand that “twisted pairs” in the ’095 Patent refers to pairs of insulated conductors which are twisted together in a helical manner around one another such that they periodically cross over one another (*e.g.*, the separation of the crossovers defining the “lay” of the wire) to form a balanced transmission line which contains the electromagnetic fields in a way that both minimizes unwanted radiation from the pair (transmission line) and makes the pair (transmission line) less likely to pick up signals from other pairs or external noise sources.

148. Consistent with my First Declaration, 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 around one another to form a balanced transmission line,” as shown in FIG. 4 of the ’095 Patent.

VI. THE CHALLENGED CLAIMS ARE NOT ANTICIPATED OR OBVIOUS.**A. ROBERTS DOES NOT ANTICIPATE CLAIMS 27-29. (GROUND 1)**

149. In my First Declaration, I explained that Roberts fails to teach or suggest the separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” elements required by the ’095 Patent claims.

EX-2001 ¶¶46-61.

150. Cornelison states “A POSITA would plainly understand that by referencing “pairs” Roberts was talking about twisted pairs. EX-1007 ¶114. I disagree.

151. The fact that the term “pair” in a data communications context does not necessarily mean “twisted pair” to a POSITA is confirmed by prior art teachings that refer to “pairs” of conductors in a data communications cable that are not twisted pairs, and which in fact teach away from using twisted pairs. For example, the Background of the Invention of U.S. Patent No. 4,800,236 (“Lemke”) (EX-2005)—the face of which cites Roberts—teaches several known shortcomings of twisted pair communication cables that were known to a POSITA:

Twisted conductor pairs result in an overall diameter of the twisted pair cable that is significantly larger than that of standard cables. Such a twisted pair cable can range from twenty to fifty percent larger than a standard cable depending upon conductor size and the number of conductors. These factors also result in a relatively stiffer cable construction which must be carefully fabricated in order to prevent failure due to cable flexing. Twisted pair cables often do not exhibit a

uniform cross-section and can thus present problems when using automatic stripping apparatus. Furthermore, providing the appropriate terminations at each end of each cable is a relatively labor intensive endeavor since before the ends of the conductors can be terminated in a suitable connector the conductors comprising each twisted pair must be untwisted.

Lemke 1:47-54.

152. Because of at least these drawbacks, rather than modifying Roberts by replacing each of its individual, straight-line conductors with twisted pairs of conductors, a POSITA would have been discouraged from undermining the teachings of Robert to do so, especially since Roberts already provided a satisfactory solution to crosstalk issues involving straight-line conductors, as I discussed in my First Declaration in ¶111.

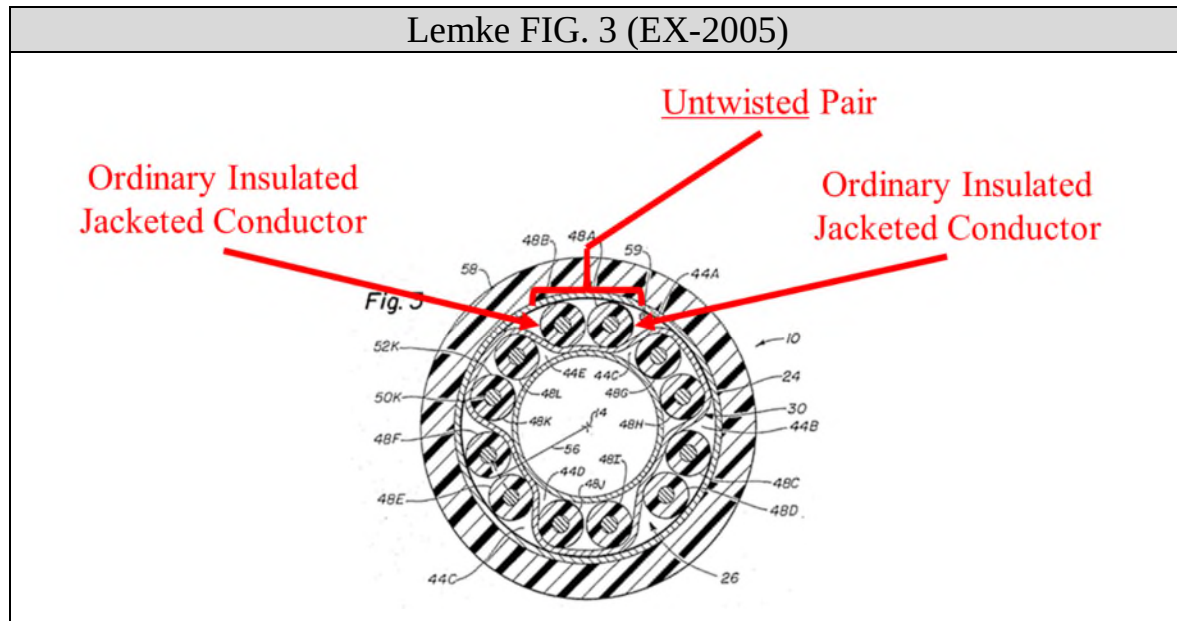
153. Lemke further describes a known prior art data communications cable that:

provides a cable assembly using ordinary individual jacketed conductors arranged in a form that is less expensive to manufacture, less bulky and more flexible when manufactured and yet provides substantially equivalent or better electrical characteristics than are available in a cable using twisted pairs. Moreover, the relatively less expensive material cost associated with individual jacketed conductor as compared to twisted pairs leads one to form a cable from such conductors.

Lemke 2:7-15.

154. Lemke then goes on to disclose “a cable structure, in either round or flat form, which utilizes ordinary insulated jacketed conductors.” Lemke 2:50-54;

see also 2:38-42.



155. As Lemke discloses:

. . . more than one conductor 48 may be disposed in each of the envelopes 44. Thus, for example, the envelope 44A contains the conductors 48A, 48B. In such an arrangement a balanced pair of conductors may be defined within each of the envelopes, with one of the conductors serving as a signal carrying conductor while the second of the conductors serves as the signal return.

Lemke 5:56-62; see also 7:52-54.

156. Lemke therefore teaches a data communications cable that utilizes pairs of conductors, but which specifically and intentionally does not utilize twisted pairs.

157. A POSITA would understand that the data communications cable disclosed in Lemke could be used as a telephone cable.

158. Accordingly, a POSITA would understand that Roberts' use of the term

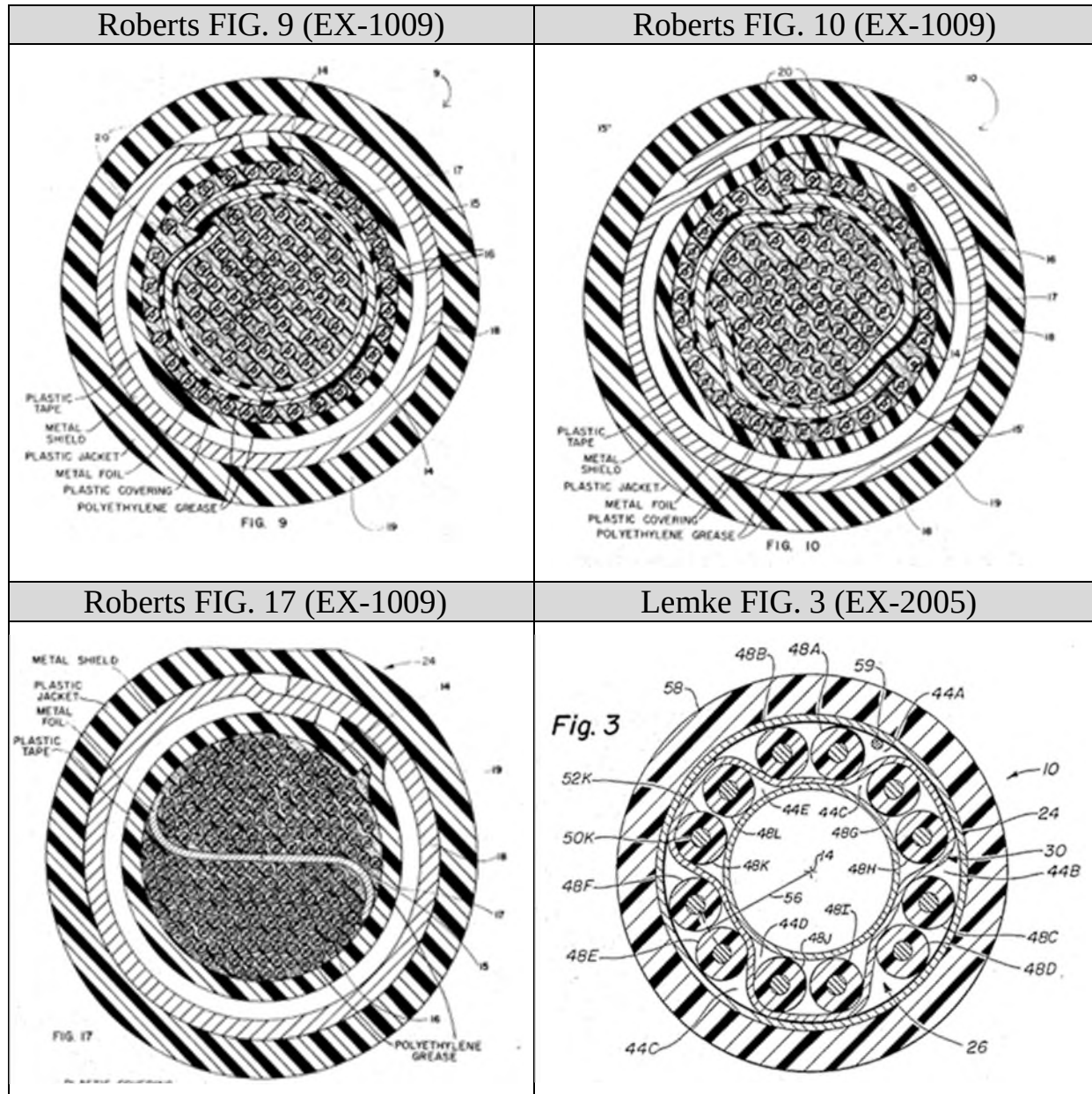
“pairs” in the Abstract does not mean that Roberts necessarily discloses “twisted pairs.”

159. In my First Declaration, I explained that 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). EX-2001 ¶¶46-47.

160. A POSITA would understand that Roberts utilizes a shield precisely because the conductors are individual, untwisted conductors and not twisted pairs forming a balanced transmission line.

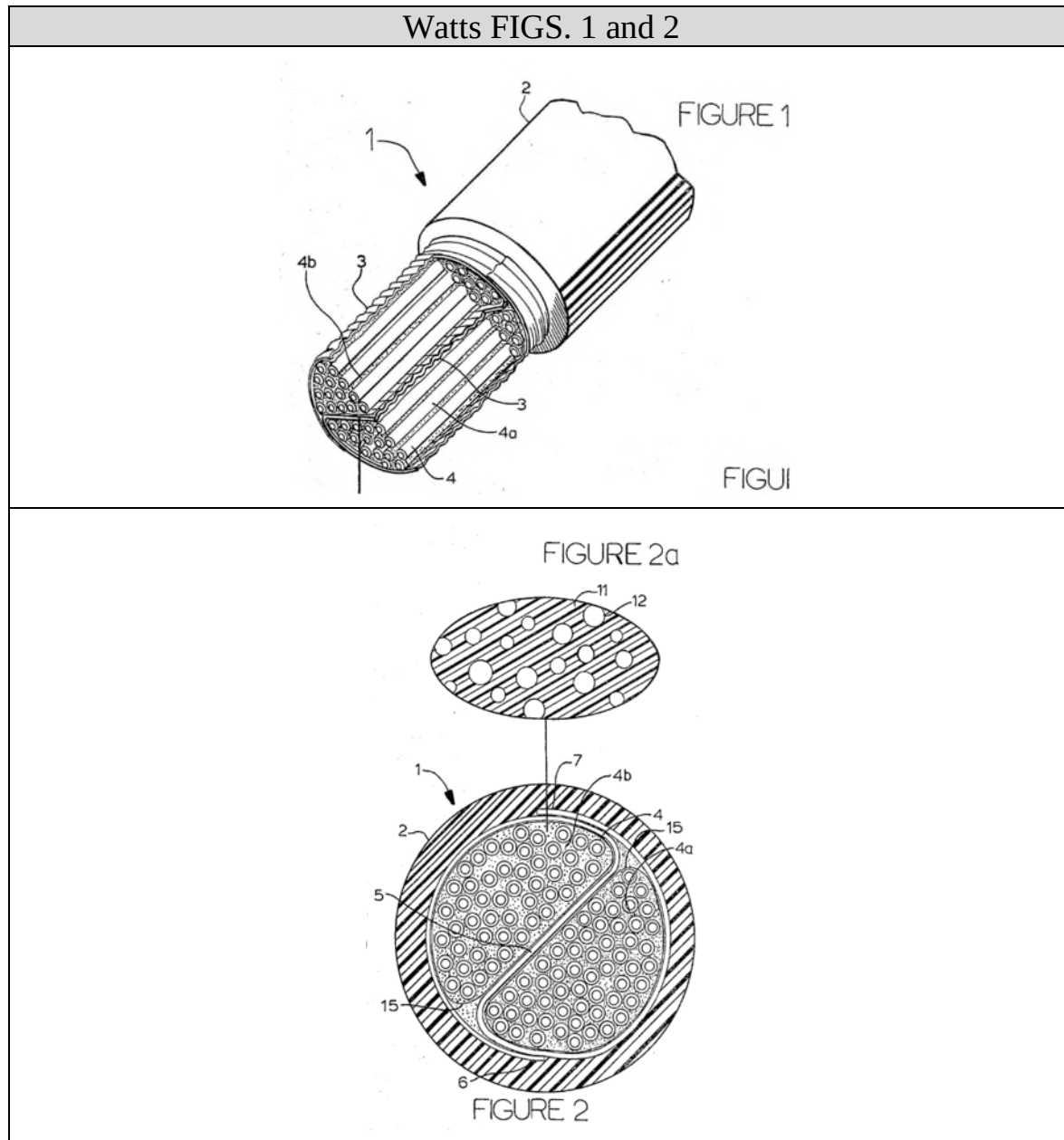
161. In my First Declaration, I explained that the cross-sectional view of the embodiment in Roberts relied on by Cornelison (FIG. 17) depicts conductors in conductor groups (14) and (16) in the same manner as the cross-sectional views of the cables shown in Roberts FIGS. 1 and 3, further teaching a POSITA how the conductors in Roberts are bundles of straight-line conductors, not twisted pairs. EX-2001 ¶49.

162. A comparison of Roberts and Lemke, which expressly discloses non-twisted pairs, confirms that a POSITA would understand that the conductors in Roberts are in fact bundles of spaced-apart, straight-line, separately insulated conductors, not twisted pairs.



163. The Background of the Invention of another patent (U.S. Patent No. 4,340,771 (“Watts”) (EX-2006) summarizes Roberts in-part as having “an internal radially extended shield that longitudinally divided the cable core into two groups.” Watts 1:68-2:2. Similar to Roberts, the improved shielding disclosed in Watts depicts straight-line “conductors (4)” divided into “two groups (4a) and (4b),” with

spaces between conductors “filled with conventional filling compounds such as polyethylene grease, petrolatum or block copolymer rubbers 11 . . .”. Watts 3:17-30.



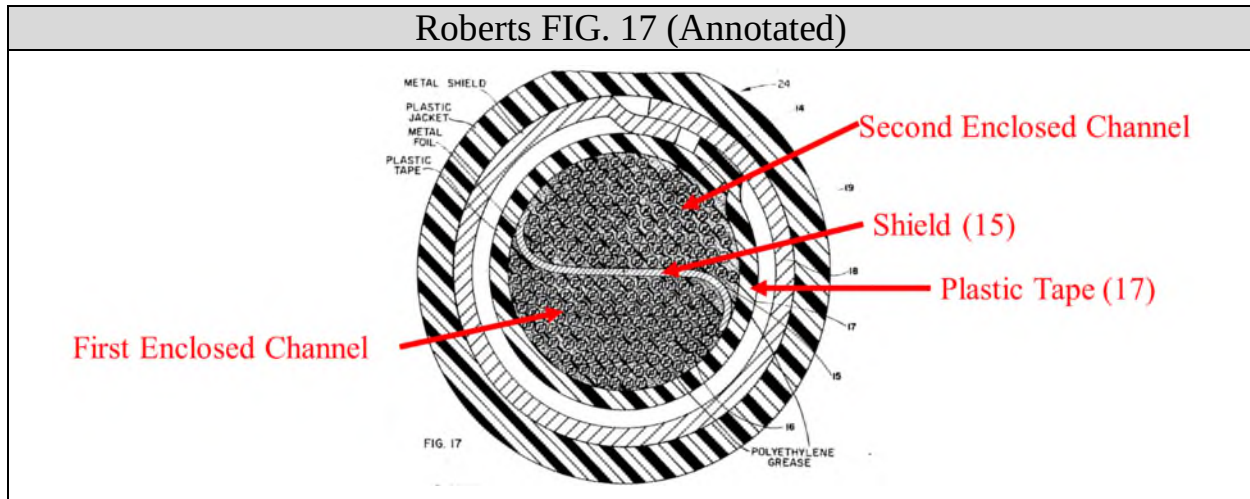
164. Like Roberts, Watts never discusses “twisted pairs,” and the conductors (4) in Watts are depicted as individual, straight-line insulated conductors.

Accordingly, a POSITA would not understand Watts to teach twisted pairs to form a balanced transmission line or the separation of twisted pairs. Nor would a POSITA understand that the similarly described cable in Roberts, which has a structure much like that disclosed in Watts, discloses twisted pairs or the separation of twisted pairs.

165. Rather than teach twisted pairs, the “pairs” referred to in the Roberts Abstract relate to one straight-line conductor within conductor group (14) that is transmitting in one direction, and another straight-line conductor within conductor group (16) that is transmitting in the opposite direction.

166. Claim 29 requires “[t]he data communications cable as claimed in claim 27, wherein the at least two grooves do not form completely enclosed channels.” ’095 Patent 12:32-34. Petitioner construed “grooves” as “[r]egions within a cable that are substantially physically separated from other regions with the cable by a pair separator; i.e., they are formed by, but need not be part of, the separator.” Pet. 18. EX-1007 ¶¶86.

167. Cornelson states “. . . a POSITA would understand Roberts to disclose a cable with the elements recited in Claim 29 and anticipate this claim.” EX-1007 ¶¶ 139-140. I disagree. Shield (15), together with plastic tape (17), creates two grooves that form completely enclosed channels under Petitioner’s construction:



Roberts 10:41-52. Accordingly, Roberts cannot anticipate claim 29.

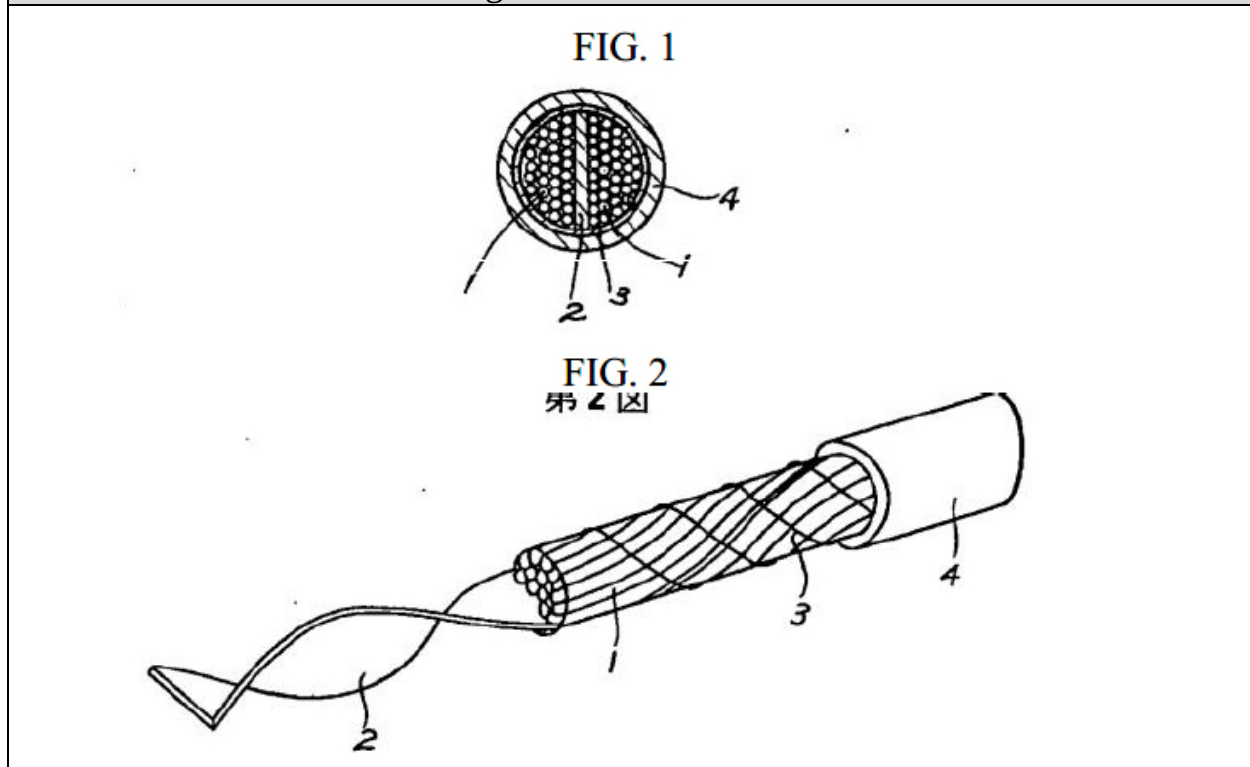
168. For these reasons and the reasons I provided in my First Declaration ¶¶46-61, Roberts cannot anticipate claims 27-29.

B. YANGITA DOES NOT ANTICIPATE CLAIMS 27-29. (GROUND 7)

169. In my First Declaration, I explained that Yanagita fails to teach or suggest the separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” elements required by the ’095 Patent claims. EX-2001 ¶¶62-77.

170. In my First Declaration, I explained that Yanagita discloses separated bundles (i.e., not pairs) of straight-line conductors:

Yanagita FIGS. 1 and 2

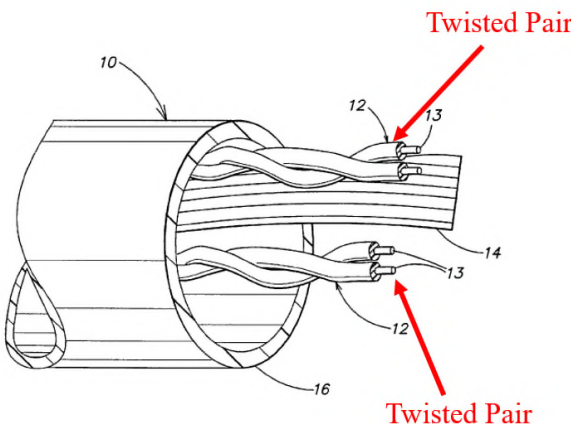
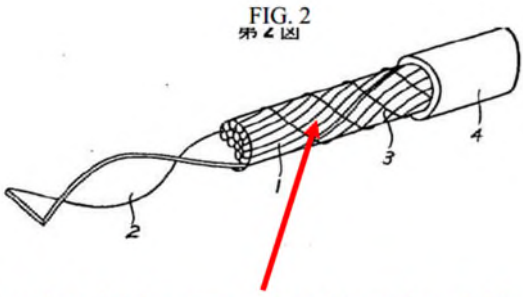


The present invention focuses on this point, and a first invention thereof is an alternately twisted cable wherein a large number of insulated wire strands, or that wherein the insulated wire strands are twisted together, are laid, while twisting along the surfaces, along both surfaces of a core material 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.

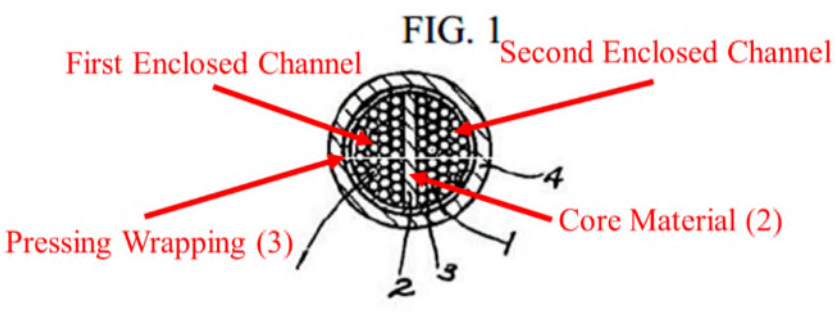
Yanagita 1 (col. 1.) . The “insulated wire strands” (1) in Yanagita refer to individual insulated conductor wires, as FIG. 2 clearly illustrates.

171. While FIG. 2 depicts the “alternately *twisted cable*” having individual conductor wires (*i.e.*, strands) running along the surfaces of that twisted core, the

individual conductors are not “twisted together around one another to form a balanced transmission line,” as shown in FIG. 4 of the '095 Patent:

'095 Patent FIG. 4 (annotated) – Twisted Pairs	Yanagita FIG. 2 (annotated) – Twisted Cable
 Twisted Pair Twisted Pair	 FIG. 2 第 2 图 “insulated wires are twisted together, laid divided onto both sides of a core material 2” Yanagita 1 (col. 1).

172. Cornelson states “. . . a POSITA would understand Yanagita to disclose a cable with the elements recited in Claim 29 and anticipate this claim.” EX-1007 ¶¶276-277. I disagree. Core material (2) together with pressing wrapping (3) creates two grooves that form completely enclosed channels:

Yanagita FIG. 1 (Annotated)
 FIG. 1 First Enclosed Channel Second Enclosed Channel Pressing Wrapping (3) Core Material (2)

Yanagita 1 (col. 1). Cornelson failed to explain why the channels formed are not

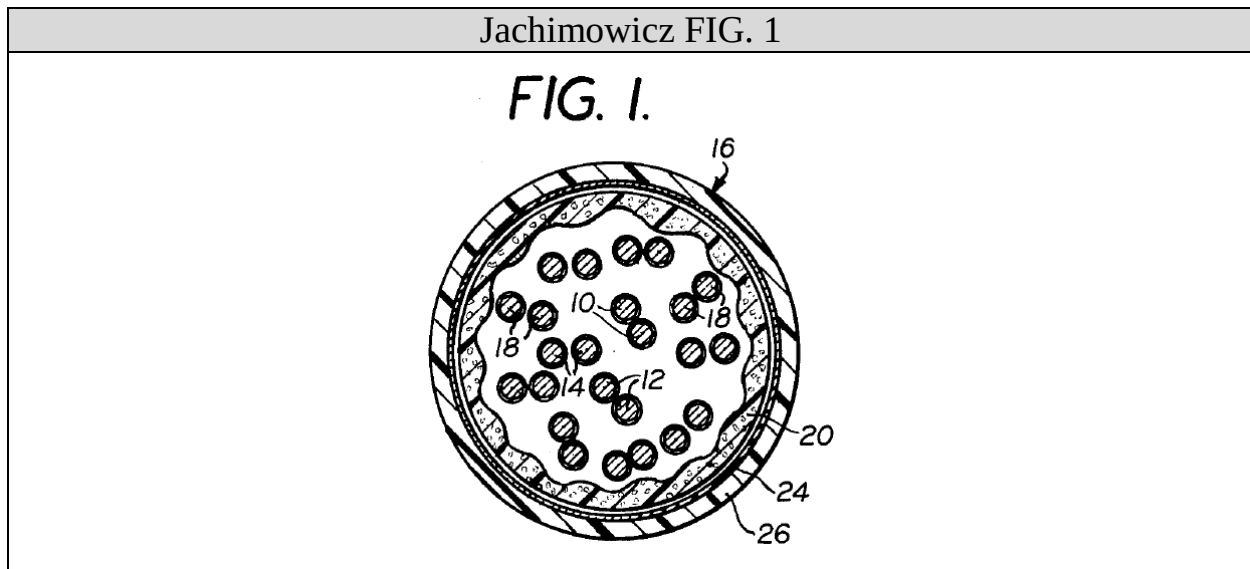
completely enclosed, which is contrary to Petitioner’s own proposed construction by requiring that the channels be formed entirely by core material (2). Accordingly, Yanagita cannot anticipate claim 29.

173. For these reasons and the reasons I provided in my First Declaration ¶¶62-77, Yanagita cannot anticipate claims 27-29.

C. THE COMBINATION OF ROBERTS AND ONE OR MORE OF GMBH-866, JACHIMOWICZ, AND GINGUE DOES NOT RENDER OBVIOUS CLAIMS 27-33. (GROUND 5)

174. In my First Declaration, I explained that the combination of Roberts and one or more of GmbH-866, Jachimowicz, and Gingue does not render obvious claims 27-33 of the ’095 Patent. EX-2001 ¶¶97-114.

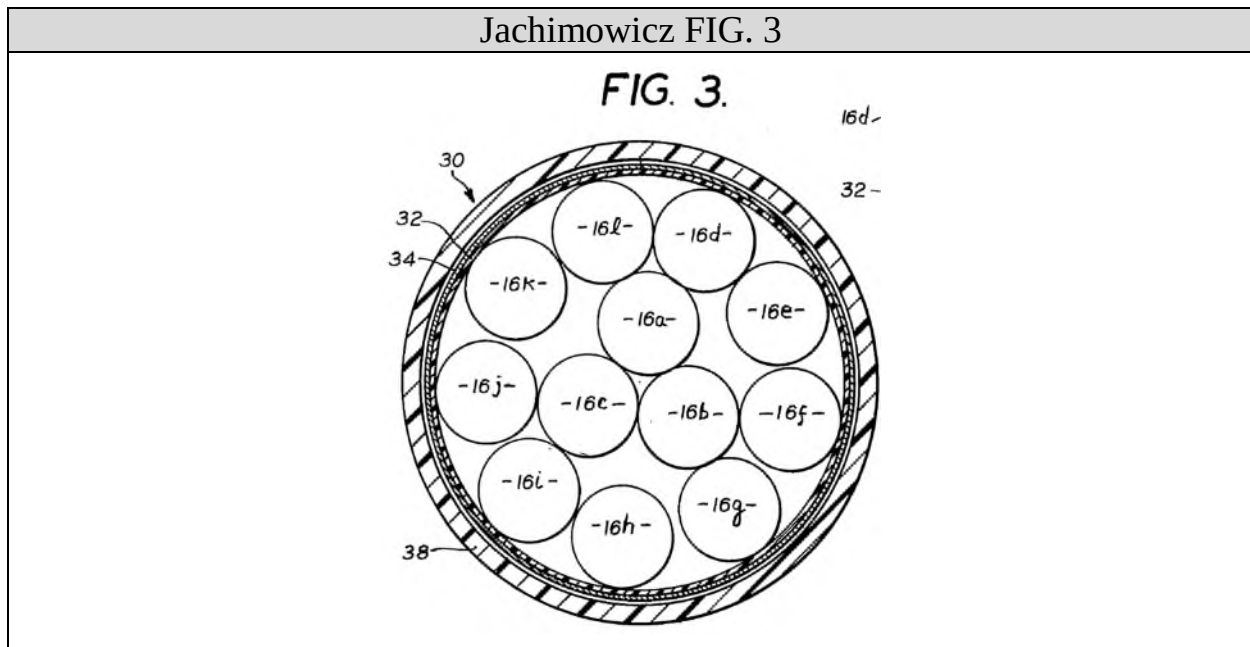
175. Jachimowicz discloses a cable in which shielding around each of the conductor units (16) prevents crosstalk between the different conductor units (16) in the cable. Jachimowicz discloses multiple twisted pairs (10, 12, 14, and 18) “locked” together a single cable unit (16) by a “jacket or tape of foamed material” (20), and surrounded by “metal shield” (24). Jachimowicz 2:28-53; 3:50-52.



176. Jachimowicz discloses that “[a] metal shield 24 is placed over the jacket of foamed material 20. . . . The shield 24 is preferably a longitudinally applied folded aluminum or copper tape held around the unit 16.” Jachimowicz 2:54-65. Jachimowicz further teaches “[t]he cable of this invention consists of a multitude of identical small cables [unit 16] twisted together to form one cable core.” Jachimowicz 1:54-56.

FIG. 3 shows a communication cable with approximately 144 pairs. This communication cable, designated by the reference character 30 is made up of 12 units 16 and in FIG. 2 these units are indicated by the reference character 16 with a different letter a through p appended.

Jachimowicz 3:12-17.



“All of the units 16 are preferably of the same construction, as previously explained, but because of the shielding around each unit the pairs in one unit do not disturb the pairs in the next unit.” Jachimowicz 3:45-49. Accordingly, the shielding around each of the conductor units (16) in Jachimowicz prevents crosstalk between the different conductor units (16). The twisted pairs of Jachimowicz do not play a critical role in reducing crosstalk between different conductor units (16), since that role is performed by the shielding around the each of the conductor units.

177. For these reasons and the reasons I provided in my First Declaration ¶¶97-114, the combination of Roberts and one or more of GmbH-866, Jachimowicz, and Gingue does not render claims 27-33 of the '095 Patent obvious.

D. THE PROPOSED COMBINATIONS IN GROUNDS 2, 4, 5, 6, AND 8 ALL FAIL TO ESTABLISH THAT THE REQUIRED PAIR SEPARATOR IS A SUBSTANTIALLY FLAT FOAMED POLYMER TAPE, AND FAIL TO RENDER CLAIMS 30-33 OBVIOUS.

178. Independent claim 27 requires “the configurable dielectric pair separator being substantially flat,” while claim 30, which depends from claim 27, requires “wherein the configurable dielectric pair separator comprises a foamed polymer tape.” Similarly, independent claim 31 requires “the configurable dielectric pair separator including a substantially flat dielectric tape formed of a foamed polymer.” ’095 Patent 12:12-37.

179. Cornelison proposed the following combinations for Grounds 2, 4, 5, 6, and 8:

Ground	Cornelison Proposed Combinations
2	Modify Roberts to include a substantially flat dielectric foamed polymer tape in view of Gingue and/or Jachimowicz, either instead or in addition to the non-foamed plastic coating on shield 15, on either one or both sides of the shield. EX-1007 ¶¶141-158
4	Modify GmbH-866 in view of the further teachings of Jachimowicz and/or Gingue to include a substantially flat dielectric foamed polymer tape, either instead or in addition to the non-foamed plastic coating on shieldings 11, 12. EX-1007 ¶¶205-220, 224-225.
5	Relies on Ground 2. EX-1007 ¶¶233-240.
6	Relies on Ground 4. EX-1007 ¶¶241-253.
8	Modify Yanagita in view of the further teachings of Jachimowicz and/or Gingue by laying substantially flat dielectric foamed polymer tape alongside Yanagida’s core material 2 along with the laying of the twisted pairs. EX-1007 ¶¶278-290, 294-295.

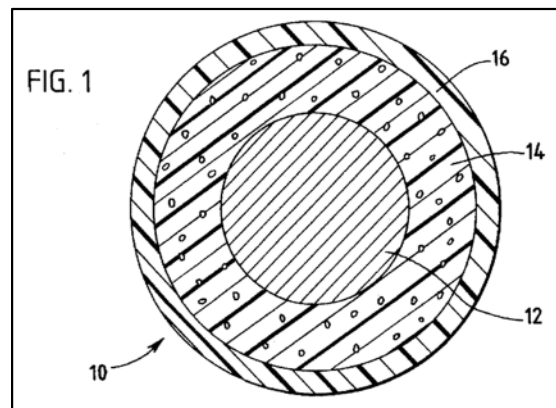
180. Gingue (EX-1013) discloses:

The present invention relates to insulated electrical conductors and jacketed electrical cables. More particularly, the present invention relates to composite electrical insulation exhibiting reduced flame spread, reduced smoke evolution, and favorable electrical properties. The present invention also relates to insulated electrical conductors and jacketed plenum cable formed from the flame retardant and smoke suppressant composite insulation.

Gingue 1:8-15.

Turning first to FIG. 1, an insulated electrical conductor 10 comprises a centrally disposed electrical conductor 12. A foamed polymeric inner layer 14 surrounds the central conductor 12. An outer layer 16 comprising a halogenated polymeric material and at least one flame retardant and smoke suppressant additive surrounds the inner layer 14.

Gingue 5:24-29.

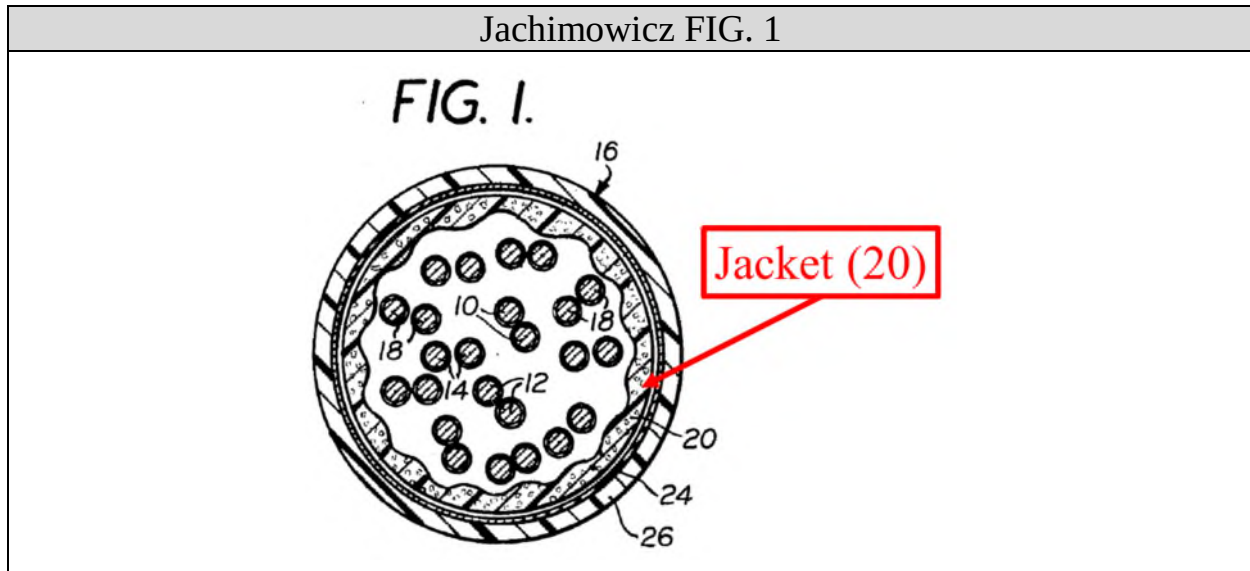


181. Gingue discusses the use of foamed polymers as insulation to surround bare metal conductors, but it fails to disclose or suggest anything about the use or existence of a foamed polymer tape.

182. Cornelison relied upon Jachimowicz (EX-1014) and its disclosure of a foamed polymer jacket for support. EX-1007 ¶¶142,206, 224, 233, 241, 279, 294. But the jacket disclosed in Jachimowicz is neither a twisted pair separator, nor

substantially flat.

183. Instead of separating twisted pairs, Jachimowicz discloses a jacket that does the exact opposite of separating—instead, it surrounds multiple sets of twisted pairs to firmly lock them together, as described in relation to FIG. 1:



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 jacked [sic] 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.

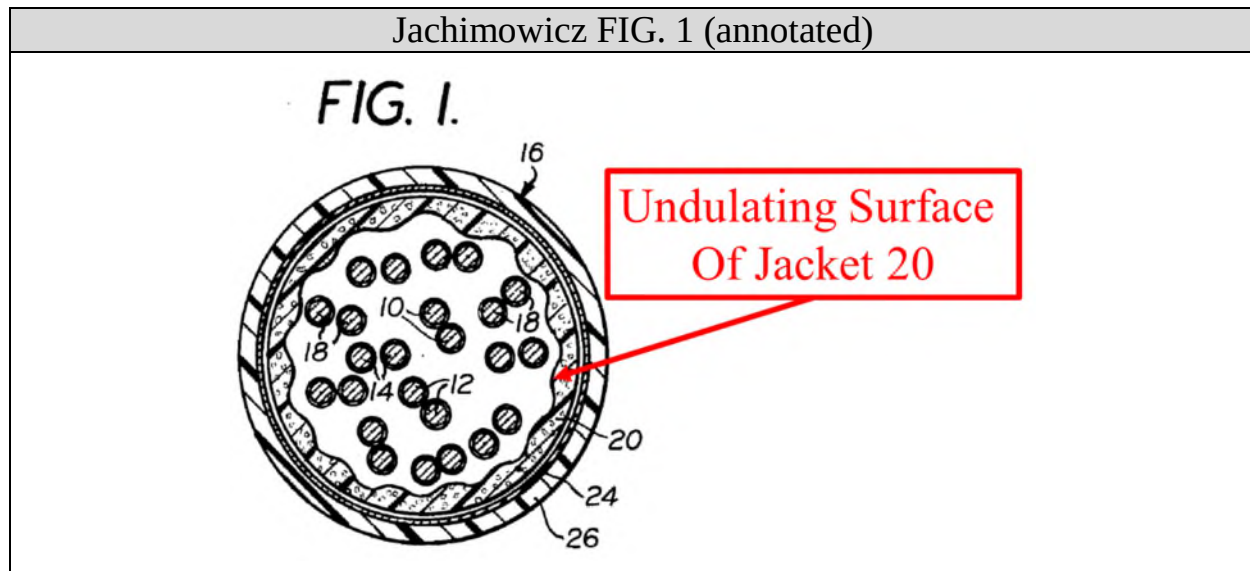
Jachimowicz 3:50-56.

184. A POSITA would understand that the jacket, whether it be extruded

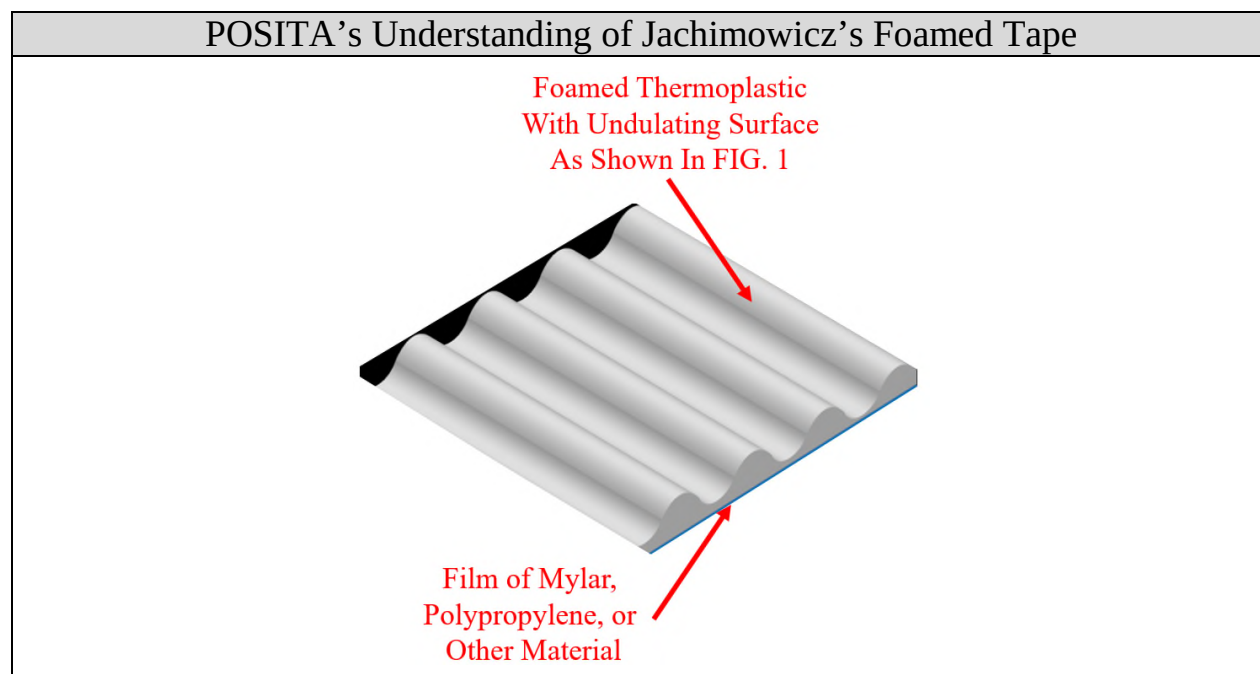
foam polymer or a tape, needs to be of sufficiently rigid composition that the pairs of conductors are bundled firmly together and unable to move (*i.e.*, “locked”).

185. Nothing in Jachimowicz teaches or suggests that the jacket, which was designed to “lock” the twisted pairs together (Jachimowicz 2:46-53, 3:50-56) (*i.e.*, the exact opposite of a separator) could or would be used for separating conductor pairs.

186. Petitioner’s own proposed construction for “substantially flat” is “a substantially flat member prior to being formed into the cable assembly; the term does not require that the separator be substantially flat (*i.e.*, free of any bends or folds) in the finished cable.” Pet. 13. The jacket in Jachimowicz that Petitioner relied on for disclosure of the “substantially flat configurable dielectric separator” is not shown in FIG. 1 as being flat, nor has Cornelison provided any evidence that the jacket is flat prior to being formed in the cable assembly. A POSITA would understand “foamed jacket (20) or foamed tape” (Jachimowicz 3:51-52) to have an undulating surface, just as it is shown in FIG. 1.



187. Cornelison alleged that the foamed tape disclosed in Jachimowicz is substantially flat without ever citing any description of it as such or even showing a single figure in Jachimowicz. EX-1007 ¶¶144-158, 205-214, 278-290. But Cornelison's understanding is not what a POSITA would understand Jachimowicz's tape to be:



188. Nothing in Jachimowicz teaches that the “tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene, or other material” is flat before it is installed within the Jachimowicz cable. Jachimowicz 2:52-53. A POSITA would understand that the tape is not substantially flat prior to being formed in the final cable assembly, given the only depiction of the jacket 20 in FIG. 1.

189. Jachimowicz is clear that “[t]he 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.” Jachimowicz 3:50-56.

190. Cornelison based his opinions about the tape in Jachimowicz on an erroneous understanding of the function performed by that tape. I understand that when cross-examined regarding if the purpose of the Jachimowicz tape was to “lock”

the conductor pairs together, Cornelison repeatedly testified that his opinions were that “to perform the function of lock, he’s [Jachimowicz is] describing the extruded thin jacket of foamed polyethylene,” and that “to lock the pairs means to deliberately limit the movement of the pairs within the core” and “to perform a more solid mechanical capture in the cable than with tape.” EX-2004 (Cornelison Tr.) 106:16-112:1. I understand that Cornelison further testified that his view of the function performed by the disclosed tape in Jachimowicz was to merely keep the pairs “held together,” which “could allow conductors, pairs within the cable to move about.” *Id.* Cornelison’s understanding of the function of the foamed tape in Jachimowicz is incorrect, thereby rendering his perceived and incorrect description of its shape without any basis in fact and entirely unreliable.

191. A POSITA would understand that the foamed tape in Jachimowicz is not substantially flat in order to serve its intended purpose of locking the conductor pairs together.

192. Cornelison failed to provide any evidence that the alleged foam tape in Jachimowicz, or the nonexistent “tape” in Gingue, in various combinations with Roberts, GmbH-866 and Yanagita, is “substantially flat” under Petitioner’s own proposed construction.

193. For these reasons and the reasons I provided in my First Declaration, the alleged combinations in Grounds 2, 4, 5, 6, and 8 cannot disclose each and every

element of claims 30 and 31-33. Therefore, the alleged combinations in Grounds 2, 4, 5, 6, and 8 cannot render claims 30 and 31-33 obvious.

194. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

195. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: April 1, 2024

By: 

Charles A. Eldering, Ph.D.