

Patent Owner's Demonstratives

**COMMScope TECHNOLOGIES LLC,
v.
BELDEN INC.,**

**Patent Nos. 6,998,537 and 6,570,095
IPR2023-01061, -01062**

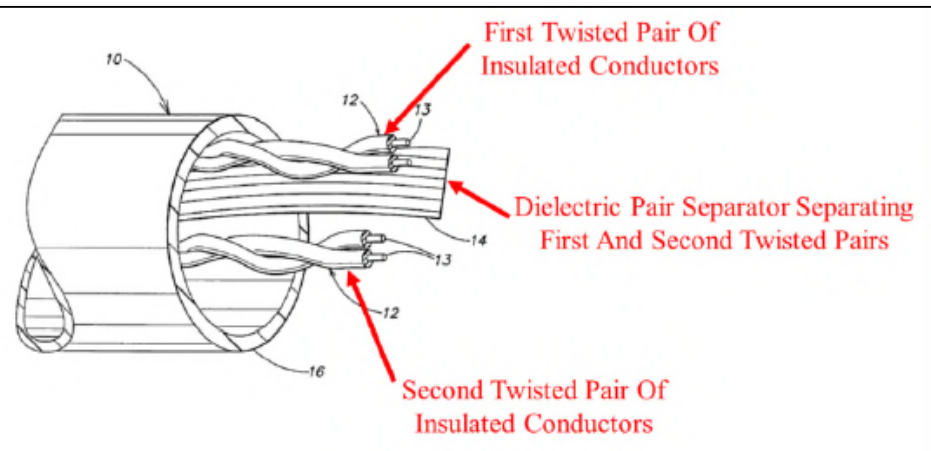
September 23, 2024

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

CommScope v. Belden
IPR2023-01061, -01062
Belden EX-2014

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

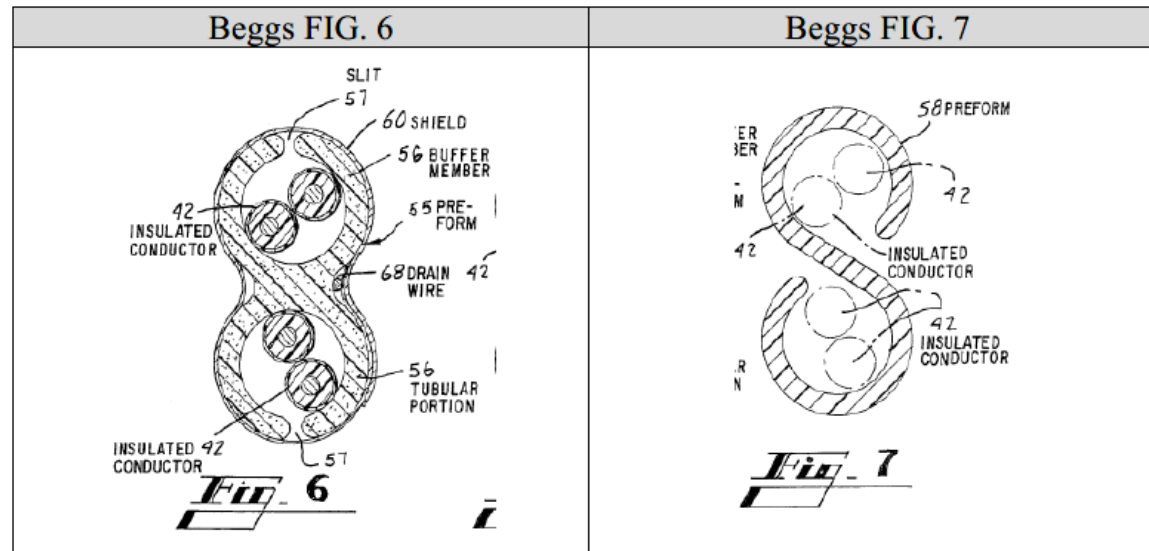
● Substantially Flat Configurable Dielectric Separator



19. An unshielded communications cable comprising:
a plurality of twisted pairs of insulated conductors comprising a first twisted pair of insulated conductors and a second twisted pair of insulated conductors;
a substantially flat configurable dielectric separator that consists of non-conductive, dielectric materials disposed between the plurality of twisted pairs of conductors that separates the first twisted pair of insulated conductors from the second twisted pair of insulated conductors; and
a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric separator;
wherein the substantially flat configurable dielectric separator includes a foamed polymer.

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Beggs – No disclosure of a **foamed polymer** “tape”



42—42. Also, the S-shaped preform 58 in FIG. 7 may be replaced with a tape which is made of a dielectric material and which is wrapped about the conductor pairs to cause each pair to be enclosed substantially in a dielectric portion of the buffer system.

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Beggs – No disclosure of a **foamed polymer** “tape”

Other embodiments of the individual conductor pair buffering are shown in FIGS. 6 and 7. It is within the scope of this invention to replace the tubular members 51—51 with a preform 55 comprising dual tubular buffer portions or members 56—56 which are joined together (see FIG. 6). The preform may be comprised of a solid or expanded polyvinyl chloride plastic material. Further, the preform 55 is provided with a longitudinally extending slit 56 in each outer wall thereof. In this way, the preform 55 may be provided in a supply roll to a manufacturing line and a pair of the insulated conductors 42—42, twisted or untwisted, is caused to be inserted into each tubular portion 56 as the tubular portion is opened along its slit 57. In FIG. 7, an S-shaped preform 58 provides an individual buffer for each conductor pair. As in the preferred embodiment,

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Beggs – No disclosure of a **foamed polymer** “tape”

- Petitioner:

(through claim 3). Claim 18 says that the buffer system of claim 1 can be a tape; Claim 19 says the buffer system of claim 1 can comprise foamed polymer. This does not mean that the tape **cannot also be** a foamed polymer. Ex-1080, ¶16.

- Beggs

18. The communications cable of claim 16, wherein the buffer portions are portions of **a tape** which has been wrapped in an S-shape to enclose substantially the pairs of conductors.

19. The communications cable of claim 3, wherein said buffer system is comprised of a cellular polyvinyl chloride material.

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Beggs – **foamed polymer** “tape” is not obvious

- Petitioner - “A POSITA Would Have Understood Beggs’ Tape **Could** Be Foamed Polymer ...”

“Mere capability” to modify the prior art to meet the claim limitations is not sufficient to establish obviousness. *See, e.g., Ex parte Gerlach*, 212 USPQ 471, 471 (PTAB 1980)

- Petitioner

Beggs does not expressly teach that the dielectric separator that includes a foamed polymer is comprised of multiple dielectric “materials,” as recited by [19.b]. Jachimowicz teaches a dielectric foamed polymer tape that “consists of”

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Jachimowicz – jacket/tape 20 **locks** conductors together

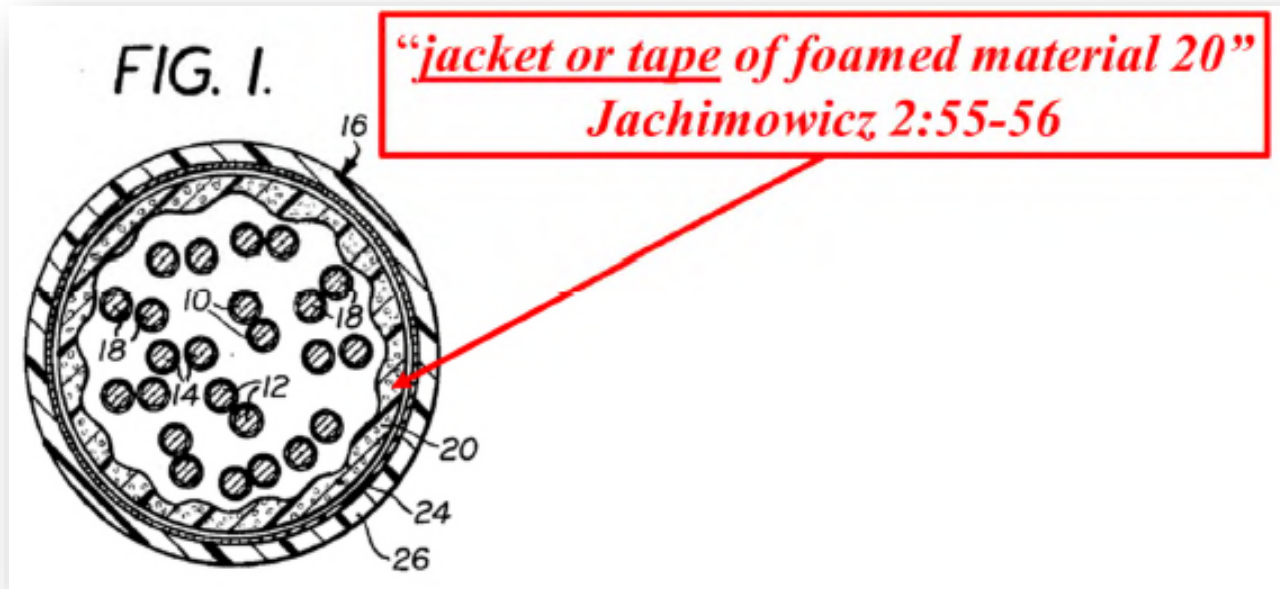
To lock the pairs 10, 11, 14 and 18 together and prevent lay distortion when the bundle is handled in manufacturing processes or at installation, a thin jacket of foamed polyethylene 20 is extruded over the bundle. The pairs can be held together in the bundle in other ways, if desired, as by applying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

A metal shield 24 is placed over the jacket of foamed material 20. One of the advantages of the jacket or tape of foamed material 20, in addition to holding the pairs assembled in the bundle, is that the foamed material

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 be-

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Jachimowicz – jacket/tape 20 **locks** conductors together



'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Jachimowicz – jacket/tape 20 **locks** conductors together
 - Cornelison –

So to perform the function of **lock**, he's describing the extruded thin jacket of foamed polyethylene.

A. Okay. The difference is to **lock** the pairs means to deliberately limit the movement of the pairs within the core, such as handling

However, he does indicate by his text **locking** the pairs, which to me does indeed disclose that he's trying to perform a more solid mechanical capture in the cable than with the tape that he describes a bit later.

applying a tape could allow conductors, pairs within the cable to **move about** when subjected

'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

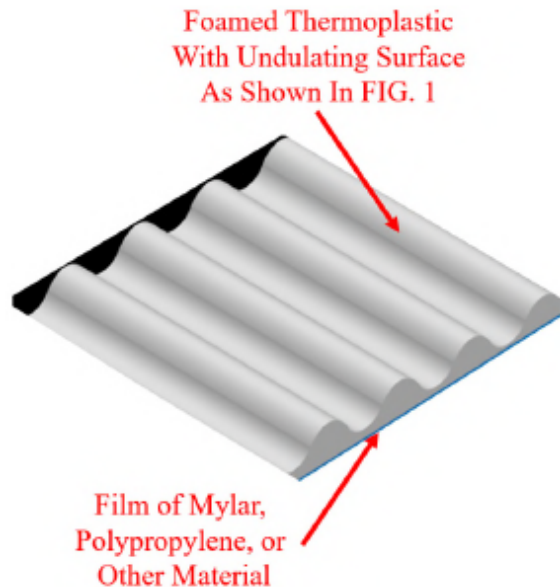
- Beggs - no disclosure of a substantially flat separator tape
 - Petitioner's Construction

The ordinary and customary meaning of a “substantially flat” separator in view of the intrinsic record is a separator that 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. EX-1007, ¶65.

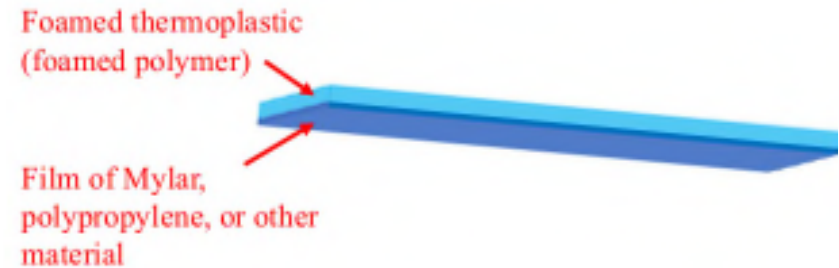
'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Jachimowicz – jacket/tape 20 is **not** substantially flat

POSITA's Understanding



Petitioner's Depiction



'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Jachimowicz – jacket/tape 20 is **not** substantially flat
 - Cornelison

in the art. And I included the diagram such as I did, because Jachimowicz does not describe any other particular characteristics of the tape that he applied over the core to bind the -- to bind the core.

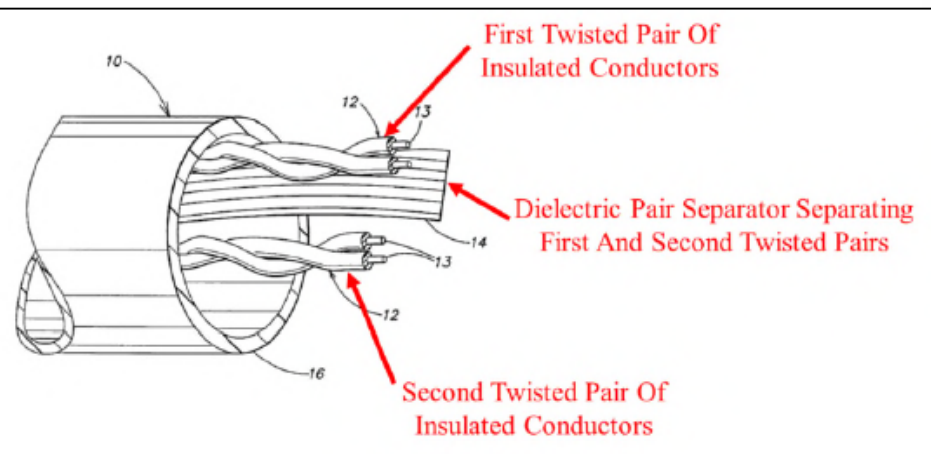
'537 Grounds 1 and 2 – Beggs/Jachimowicz - Not Obvious

- Beggs/Jachimowicz – no motivation to combine
 - Beggs – single material dielectric tape for **separating** conductors
 - Jachimowicz – undulating tape for **locking** conductors together
 - Petitioner

away from using a foamed polymer tape in the manner taught by Beggs. Moreover, it is common sense that foamed polymer tape **could** be used in the manner taught by Beggs, and there is no evidence it **could** not. Ex-1080, ¶29; *see also KSR Int'l*

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Jachimowicz – no substantially flat, foamed polymer tape that can be used as a twisted pair separator
- Yanagita – no separation of first and second twisted pairs



19. An unshielded communications cable comprising:
a plurality of twisted pairs of insulated conductors comprising a first twisted pair of insulated conductors and a second twisted pair of insulated conductors;
a substantially flat configurable dielectric separator that consists of non-conductive, dielectric materials disposed between the plurality of twisted pairs of conductors that separates the first twisted pair of insulated conductors from the second twisted pair of insulated conductors; and
a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric separator;
wherein the substantially flat configurable dielectric separator includes a foamed polymer.

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Claim Construction – “twisted pair of insulated conductors”

- Cornelison

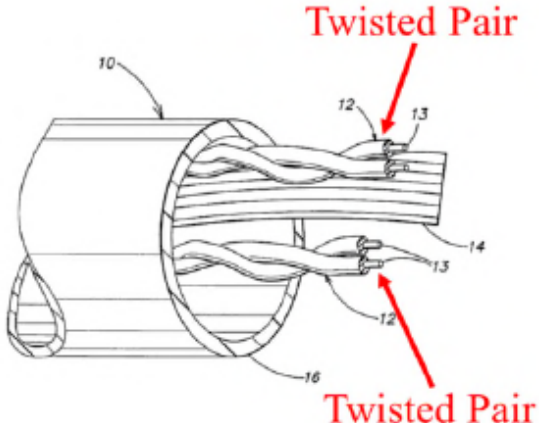
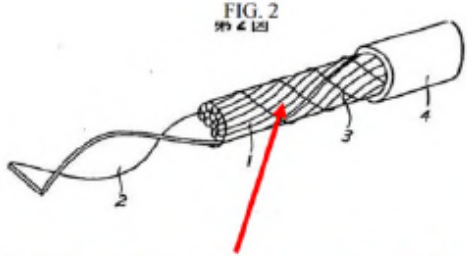
9. I understand that in the decision to institute this *inter partes* review, the Board preliminarily construed the term “twisted pair of insulated conductors” as a “pair of insulated conductors that are twisted together.” Paper 10, 12. As I

10. I also understand that Dr. Eldering has proposed a construction for “twisted pair of insulated conductors” to be “two insulated conductors twisted together around one another to form a balanced transmission line.” Eldering

- Cornelison – “**My opinions do not change** and would not change whether one or the other definition is applied,” but admits **no analysis**

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Yanagita – “alternatingly twisted cable” **not** twisted pairs

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

The present invention relates to an improvement of an **alternatingly twisted cable**, and, in particular, relates to an **alternatingly twisted cable** that prevents twisting of a wire core from becoming undone. There is a trend to often

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

● Petition

Yanagida discloses this. EX-1007, ¶¶131-132. Yanagida describes a plurality of “strands of insulated wires or pairs thereof” that run along the surface of the core material. Yanagida, 1[col.1]; *see also id.* (element 1 can be where “insulated wires are twisted together”); EX-1055, 1 (“stranded pairs”). EX-1007, ¶131, ¶126. “Stranded” and “twisted” are used synonymously in the industry. EX-1007, ¶131, ¶126.

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Yanagita (EX-1012) – discussing the prior art

core from becoming undone. 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.

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Cornelison

are examples of Yanagita explaining that (i) the overall cable components are alternatingly twisted (underlined text) and (ii) the wires of the cable may be **straight wires**² (*italics*) or twisted pairs or quads (***bold italics***):

- Cornelison – “Q. Can a strand of a wire mean an individual wire? A. Well, ‘strand’ is a noun. And in the noun it can be a strand of hair, a strand of wire. That's a thing, that's a true thing.”
- Cornelison – A “large number of strands of insulated wires” means “a large number of insulated wires.”

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

● Petition

Yanagida discloses this. EX-1007, ¶¶131-132. Yanagida describes a plurality of “strands of insulated wires or pairs thereof” that run along the surface of the core material. Yanagida, 1[col.1]; *see also id.* (element 1 can be where “insulated wires are twisted together”); EX-1055, 1 (“stranded pairs”). EX-1007, ¶131, ¶126. “Stranded” and “twisted” are used synonymously in the industry. EX-1007, ¶131, ¶126.

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

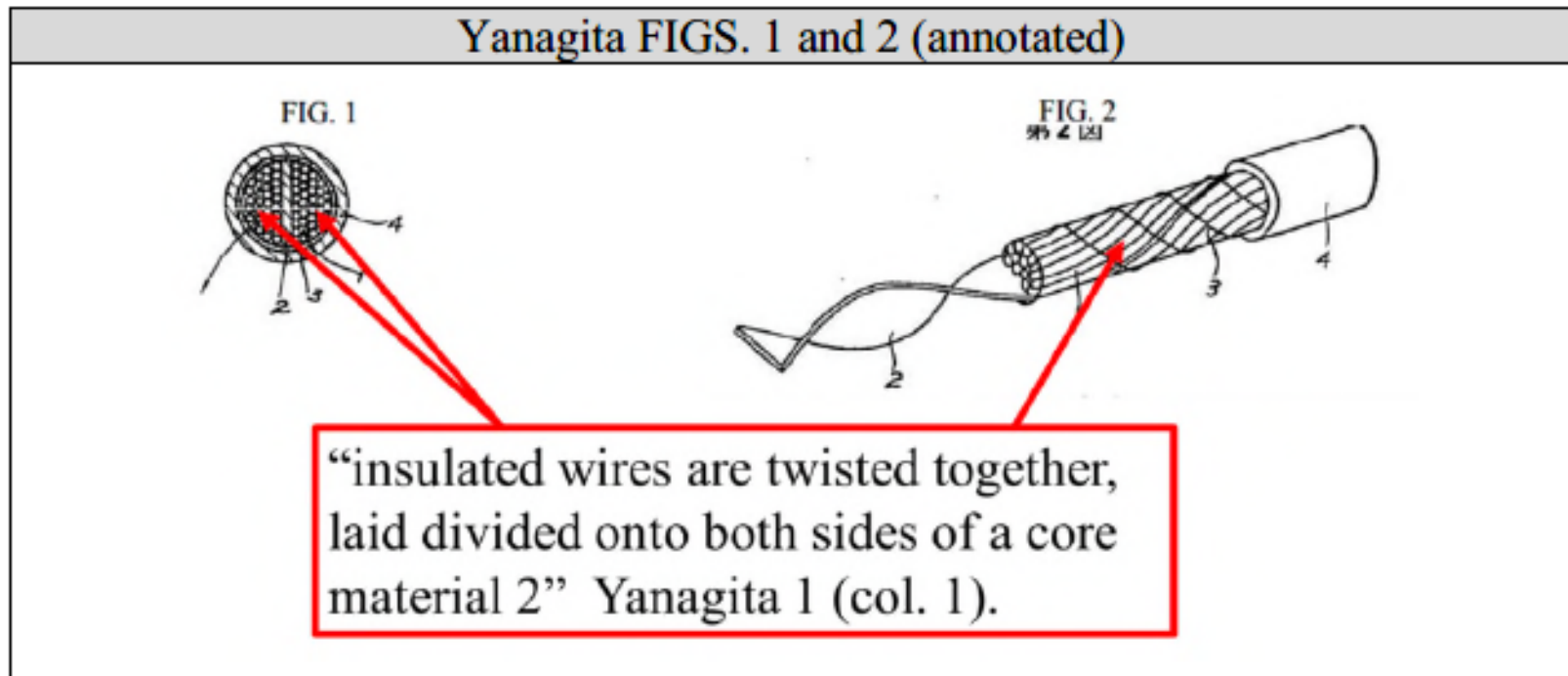
- Yanagita (EX-1012) – “twisting” discussed in “an illustrated embodiment”

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,

the direction in which the surface of the plate faces. In laying the insulated wires, while twisting depending on the direction of the surface, in proximity to both surfaces of the core material that is obtained in this way, the core material may be twisted reciprocatingly by a guide hole that is provided in the center of a revolving plate, and the revolving plate may be rotated reciprocatingly, to match the twist of the core material, while pulling the tip end of

'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Yanagita (EX-1012) – “twisting” discussed in “an illustrated embodiment”



'537 Grounds 3 and 4 – Yanagita/Jachimowicz - Not Obvious

- Uncertified Yanagita translation (EX-1055) – should be excluded
 - 37 C.F.R. § 42.63(b) – “. . . a translation of the document into English and an affidavit attesting to the accuracy of the translation **must** be filed with the document.”
 - 37 C.F.R. § 42.61(a) - “Evidence that is not taken, sought, or filed in accordance with this subpart is **not admissible**.”
 - Petitioner acknowledged Patent Owner’s objection in its Reply
 - No supplemental evidence

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- Jachimowicz – no substantially flat, foamed polymer tape that can be used as a twisted pair separator
- GmbH-866 – already has metallic shielding around conductors

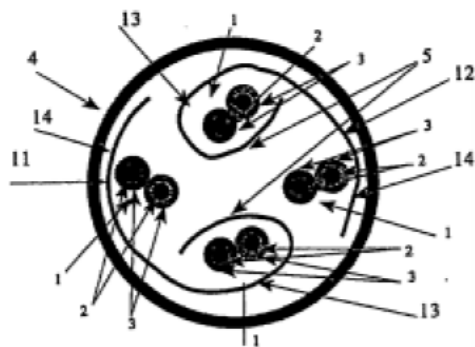


Figure 1

polyethylene” GmbH-866, 2; EX-1007, ¶156. The partial shieldings 11, 12 preferably consist of metal foils that are “laminated with plastics material.” GmbH-866 at 5; EX-1007, ¶156. The plastic-coated partial shieldings 11, 12 are positioned to “divide[] the cable cross section into at least two shielding sectors.” GmbH-866

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

● Petition

GmbH-866 discloses this element. EX-1007, ¶¶175-176. “A data transfer cable . . . comprises four pairs 1, each consisting of *two* isolated, *stranded copper conductors 2 or wires*.” GmbH-866 at 3 (emphasis added):

EX-1007, ¶175; ¶¶156-157. “Stranded” in this context means “twisted.” EX-1007, ¶175. The pairs are insulated conductors. GmbH-866, 3 (each pair consists of “two

isolated, stranded copper conductors or wires . . . [the] wires preferably have an *insulation 3 . . .*”) (emphasis added); EX-1007, ¶175, ¶156.

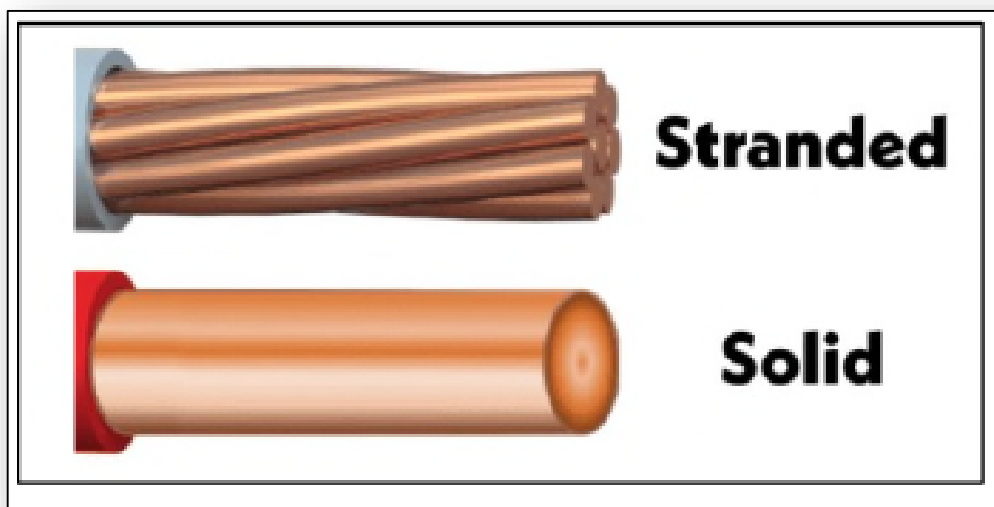
'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

● GmbH-866

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. The wall thickness of the insulation 3 is preferably in the

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- Stranded Copper Conductor vs. Solid Wire



'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

● Cornelison

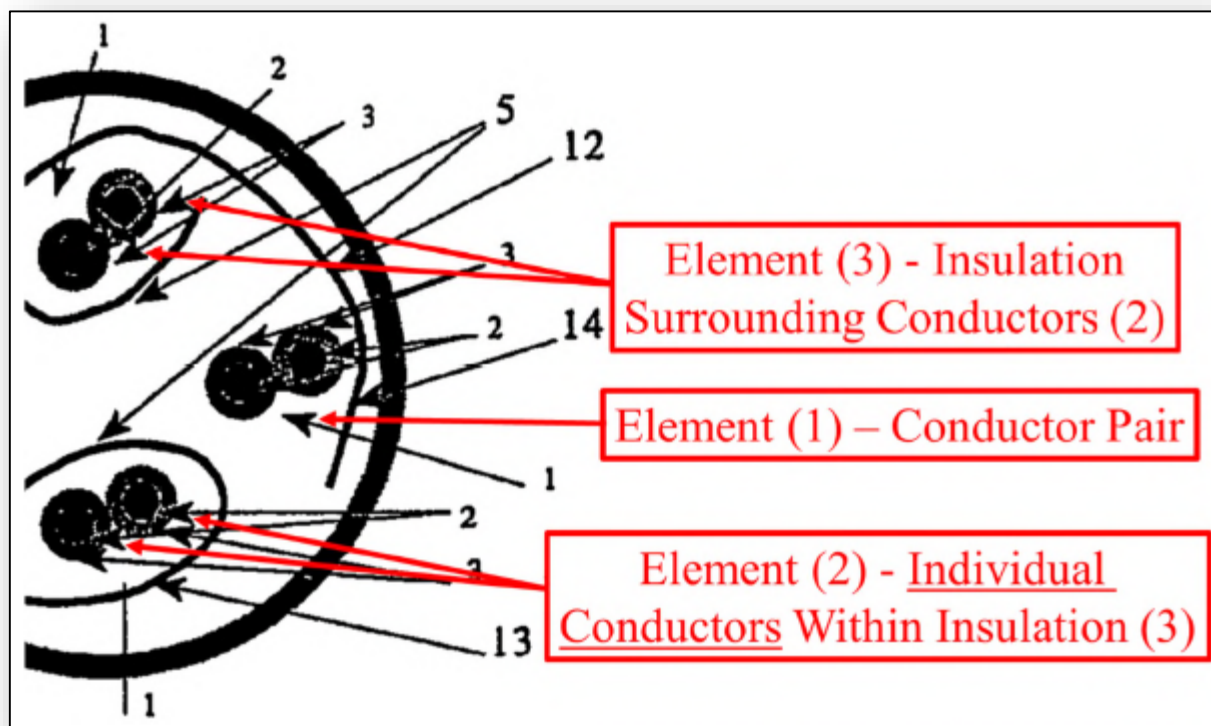
- “I know stranding . . . as a verb, or ‘stranded,’ to mean **stranded copper conductors** where you have fine filaments making up an overall larger conductor.”
- “Q: What is stranded wire? A: It is a wire that is first formed of much smaller elements or rods of copper and then assembled together to form a larger composite conductor.”

● Petitioner

- “. . . the conductive portion of each member of the pair can be ***either solid copper . . . or multi-filament wire . . .***”

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- GmbH-866 (EX-1010) – “four pairs 1, *each consisting of two isolated, stranded copper conductors 2* or wires”



‘537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- GmbH-866 (EX-1010) – “four pairs 1, ***each consisting of two isolated, stranded copper conductors 2*** or wires”
 - Petitioner

arguments are inconsistent and not credible. Normal sentence structure indicates

“stranded,” “isolated,” and “copper” all modify each of “conductors or wires.” Ex-

‘537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- Patent Owner has **not** been inconsistent

Reexam’s Uncertified Translation (EX-1057)	Litigation’s Uncertified Translation (EX-2009)	Petitioner’s Certified Translation (EX-1010)	Substantive Difference Between Translations
<i>“The stranding of pair 1 can consist of a so-called helix stranding or an SZ stranding (alternating right-left stranding) .[sic]” (marked p. 4)</i>	<i>“The stranding of pair 1 can consist of a so-called helix stranding or an SZ stranding (alternating right-left stranding) .[sic]” (p. 3)</i>	<i>“The stranding of <u>the pairs</u> 1 can consist in what is known as a helix stranding or in an SZ stranding (alternating, right-left stranding).” (marked p. 3)</i>	“stranding of <u>the pairs</u> 1” (plural) in the certified translation teaches collective stranding of the pairs together rather than stranding a single pair

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- Patent Owner has **not** been inconsistent

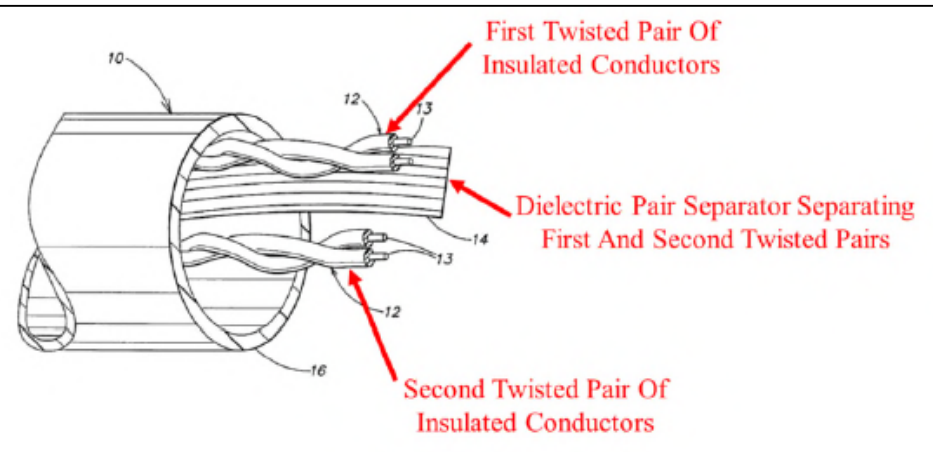
334. The '866 Patent discloses stranding of the individual conductors to form each twisted pair, and specifically discloses using "SZ" stranding. The '866 Patent states that "the stranding of pair 1 can consist of a so-called helix stranding or an SZ stranding." See (translation of the '866 Patent at ¶ 3, p. 3). However, the '866 Patent does not disclose or suggest cabling, *i.e.*,

'537 Ground 5 – GmbH-866/Jachimowicz and others - Not Obvious

- EX-2012 should **not** be excluded
 - The Board heard this issue and authorized Patent Owner to file EX-2012 for the limited purpose it was used
 - Petitioner trying to hide the **reason** behind former expert's opinion
 - Petitioner's objection was untimely under 37 C.F.R. § 42.64(b)(1)
 - EX-2012 is authentic
 - EX-2012 is **not** hearsay

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Roberts – no separation of first and second twisted pairs



27. A data communications cable comprising:
a first twisted pair of insulated conductors;
a second twisted pair of insulated conductors;
a configurable dielectric pair separator that separates the first and second twisted pairs of conductors, the configurable dielectric pair separator being substantially flat;
a jacket enclosing the first and second twisted pairs of insulated conductors and the dielectric pair separator; and
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; and
wherein the configurable dielectric pair separator is arranged within the jacket to form at least two grooves.

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Cornelison – “pairs” does not always mean “twisted pairs”

Q. And if something refers to a pair in

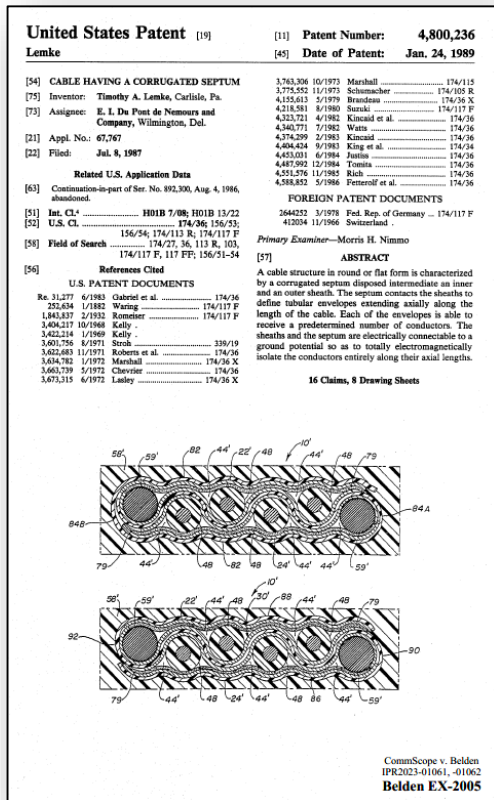
the data communications cable context, without specifying whether it's twisted or untwisted, is it your opinion that the intent is to mean twisted?

A. The answer to that question is no.

And the reason is I mentioned earlier an example of such a product called twinax and other type of constructions where there are two wires that could be called a pair that are -- by definition of a cable construction design are not twisted.

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

U.S. Patent No. 4,800,236 ("Lemke")



plexity. 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.

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

● U.S. Patent No. 4,800,236 ("Lemke")

United States Patent [19]
Lemke

[11] Patent Number: **4,800,236**
[45] Date of Patent: **Jan. 24, 1989**

[54] CABLE HAVING A CORRUGATED SEPTUM
[75] Inventor: **Timothy A. Lemke, Carlisle, Pa.**
[73] Assignee: **E. I. Du Pont de Nemours and Company, Wilmington, Del.**
[21] Appl. No.: **67,767**
[22] Filed: **Jul. 8, 1987**

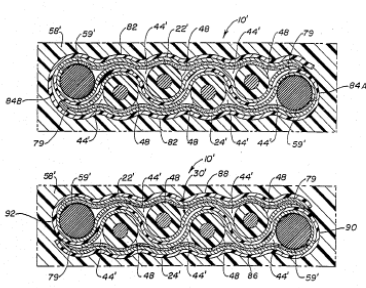
Related U.S. Application Data
[63] Continuation-in-part of Ser. No. 892,300, Aug. 4, 1986, abandoned.
[51] Int. Cl. **H01B 7/08; H01B 13/22**
[52] U.S. Cl. **174/36; 156/53; 156/54; 174/113 R; 174/117 F**
[58] Field of Search **174/27; 56; 113 R; 103; 174/117 F; 117 FF; 156/51-54**

References Cited
U.S. PATENT DOCUMENTS
Re. 31,277 6/1983 Gabriel et al. 174/36
252,634 1/1982 Wang 174/117 F
1,843,837 2/1932 Rommster 174/117 F
3,494,217 10/1968 Kelly
3,422,214 1/1969 Kelly
3,601,756 6/1971 Stroh
3,622,683 11/1971 Roberts et al. 174/36
3,634,782 1/1972 Marshall 174/36 X
3,663,739 5/1972 Chevalier 174/36
3,673,315 6/1972 Laidley 174/36 X

FOREIGN PATENT DOCUMENTS
264022 5/1978 Fed. Rep. of Germany 174/117 F
412034 11/1966 Switzerland

Primary Examiner—Morris H. Nimmo
[57] **ABSTRACT**
A cable structure in round or flat form is characterized by a corrugated septum disposed intermediate an inner and an outer sheath. The septum contacts the sheaths to define tubular envelopes extending axially along the length of the cable. Each of the envelopes is able to receive a predetermined number of conductors. The sheaths and the septum are electrically connectable to a ground potential so as to totally electromagnetically isolate the conductors entirely along their axial lengths.

16 Claims, 8 Drawing Sheets



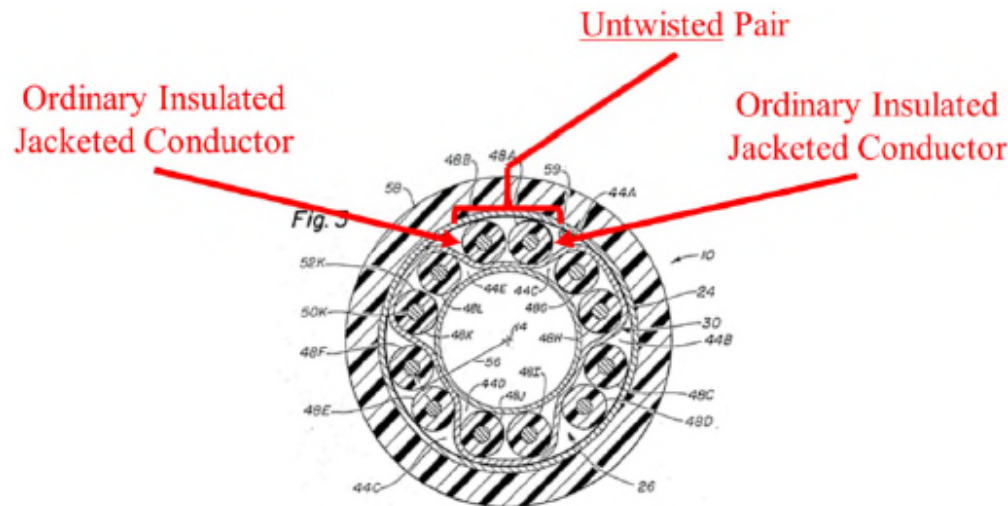
CommScope v. Belden
UPR2023-01061, -01062
Belden EX-2005

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.

The present invention relates to a cable structure, in either round or flat form, which utilizes ordinary insulated jacketed conductors and which includes a corrugated separating member, or septum, to electromagnetically isolate each conductor along its entire length. In

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- U.S. Patent No. 4,800,236 ("Lemke")



shown in FIG. 3, 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.

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

● Roberts

such a cable from other conductors of the cable. In order to transmit currents of the same frequency in both directions within the same cable . . . it is desirable that the *conductors used for transmitting in one direction be shielded (electrically) from those transmitting in the opposite direction*. 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.

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

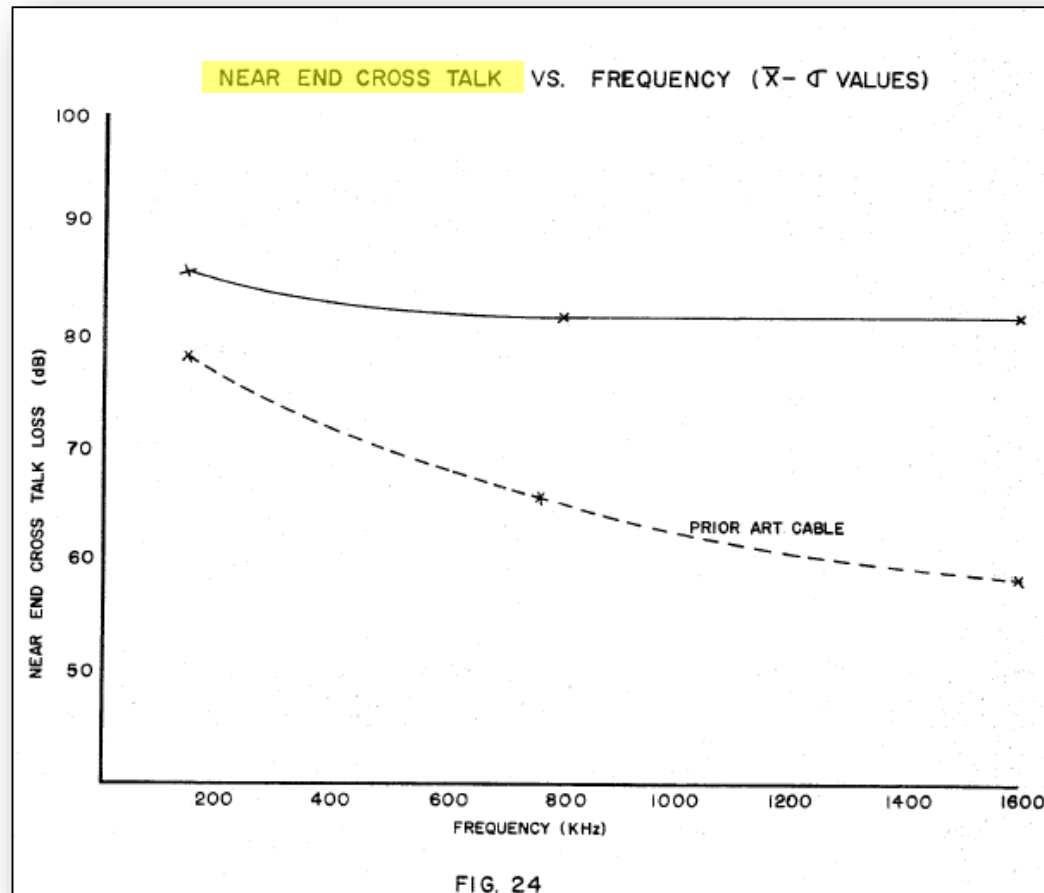
- Roberts

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. The instant in-

Comparing the data represented by the two curves shown in FIG. 24, it can be seen that at the higher frequencies, the decrease in crosstalk loss is exhibited and generally averages about 6 db. decrease per octave. It will be noted that the

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

● Roberts



'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

● Cornelison

same direction, under his interpretation of Roberts. As I explained in my First Declaration and above, a POSITA would have known that there was (i) crosstalk between the different groups of conductors transmitting in opposite directions (usually measured as “near-end” crosstalk), and also (ii) crosstalk between conductors within the same group transmitting in the same direction (sometimes measured as “far-end” crosstalk). Ex-1007, ¶¶37-38; §VI.A.2, *supra*. As I

ways. Near-end crosstalk *between the groups* transmitting in opposite directions was reduced by the shield 15, and crosstalk *within a single group* 14 or 16

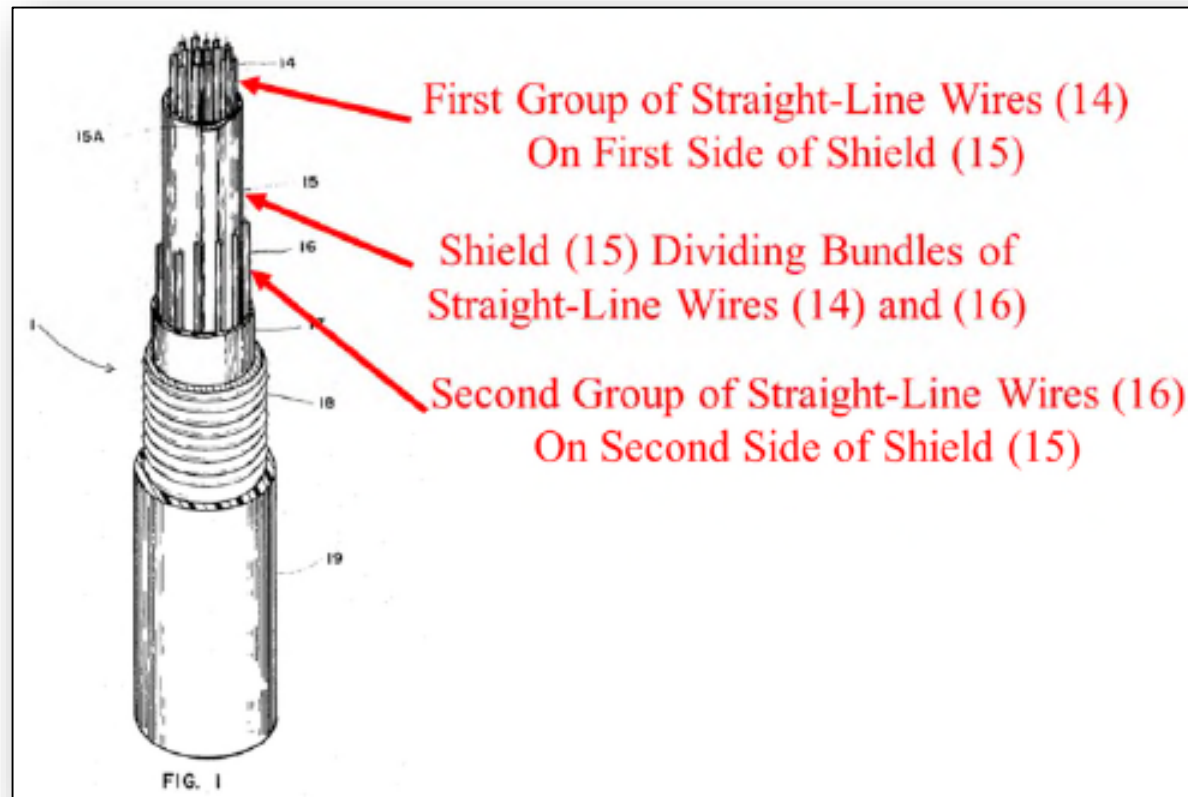
'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

● Cornelison

35. Dr. Eldering's read of Roberts entirely ignores another type of crosstalk—the well-known issue of crosstalk (at both the near end and far end) ***within a single group of conductors*** transmitting in the same direction that I discussed above. **Roberts does not talk about this type of crosstalk.** That is because

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Roberts – shielding groups of **straight-line** conductors

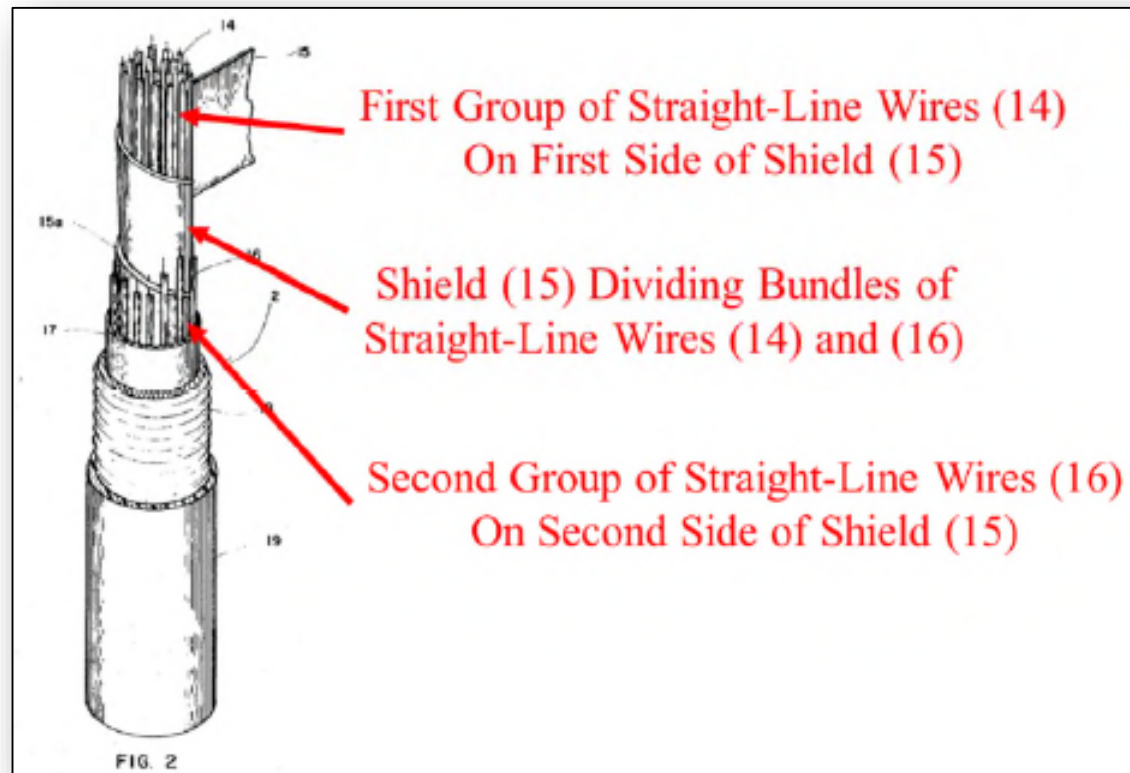


'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162;
Roberts FIG. 1

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Roberts – shielding groups of **straight-line** conductors

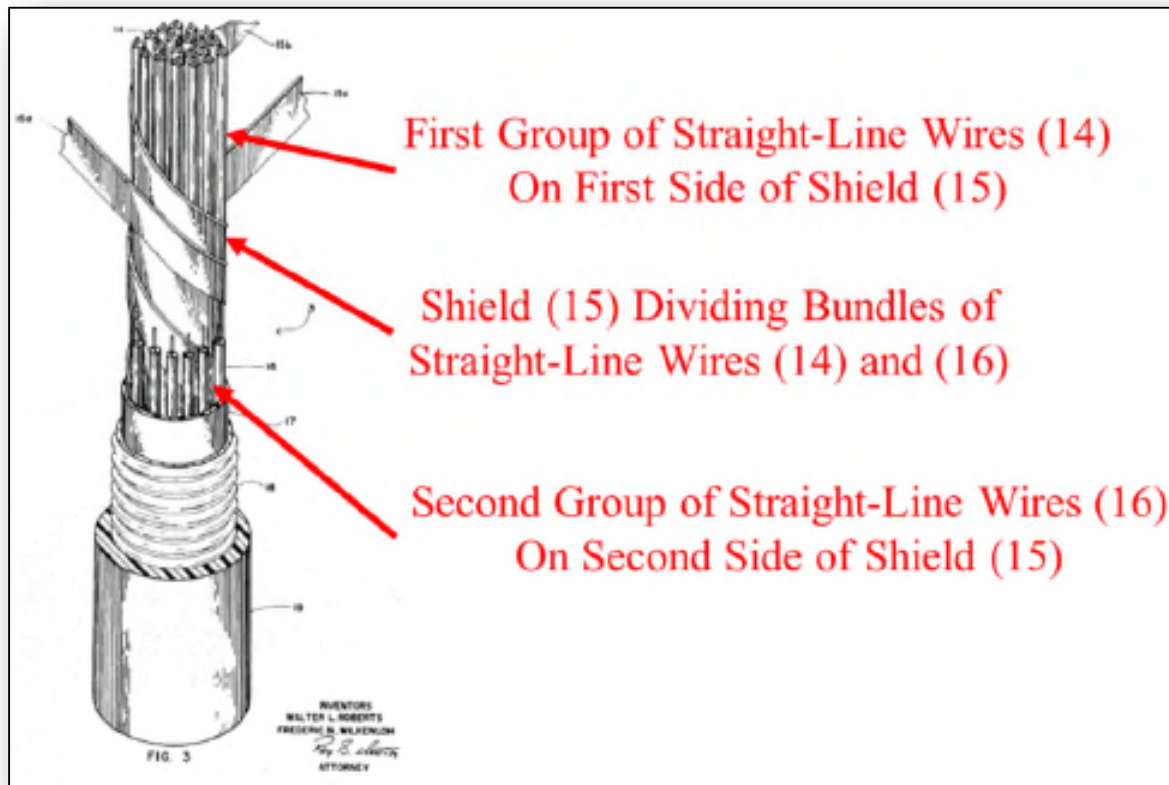


'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162;
Roberts FIG. 2

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Roberts – shielding groups of **straight-line** conductors

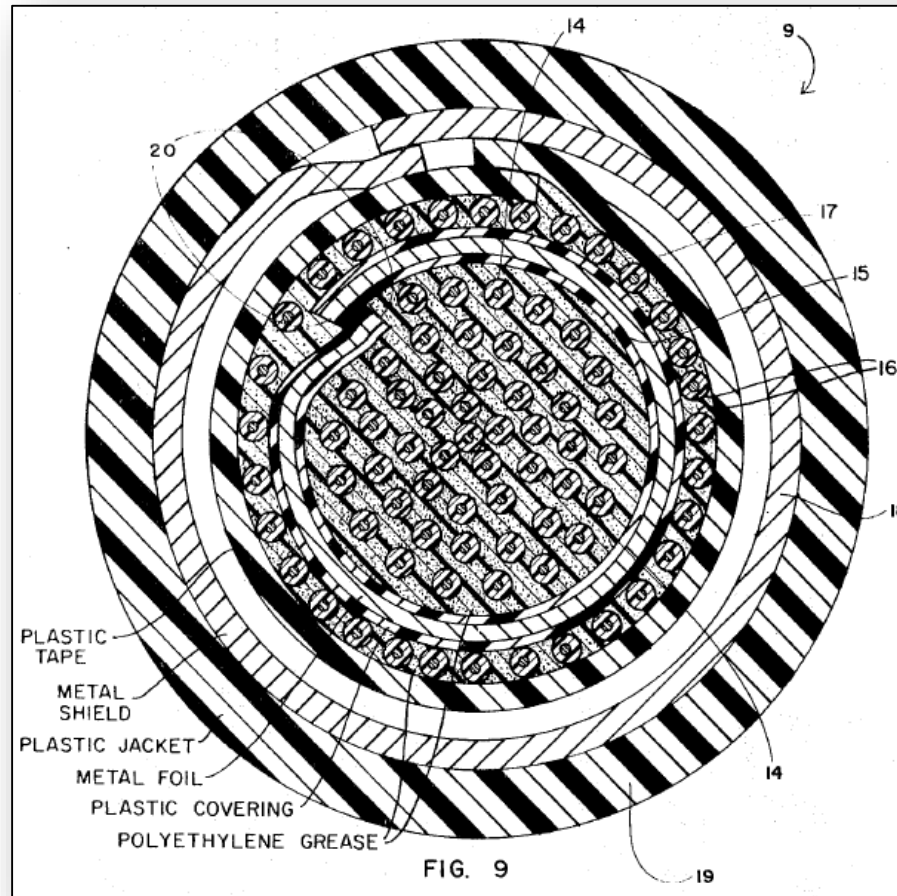


'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162;
Roberts FIG. 3

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

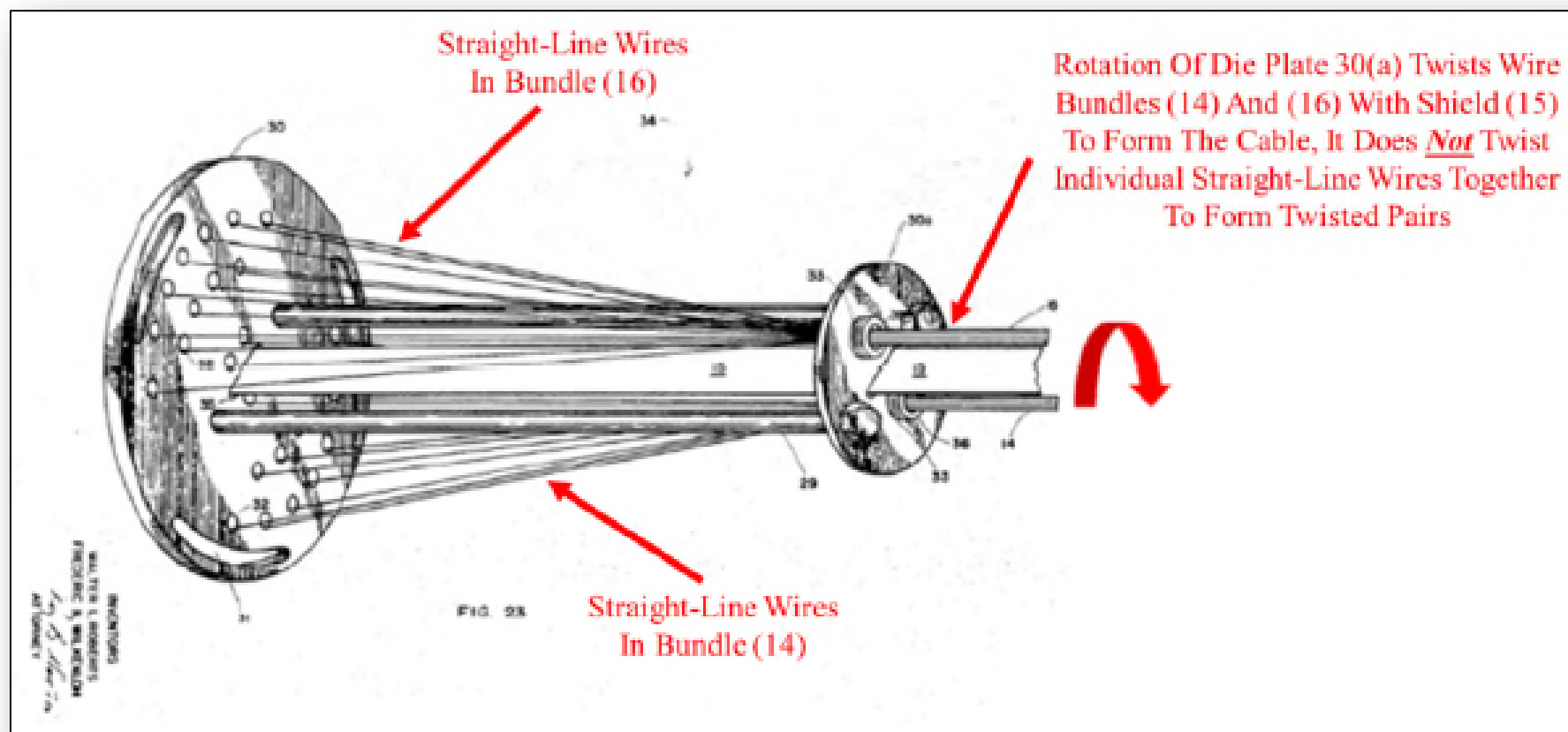
'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

- Roberts – shielding groups of **straight-line** conductors



'095 Grounds 1 and 2 – Roberts – Not Anticipated or Obvious

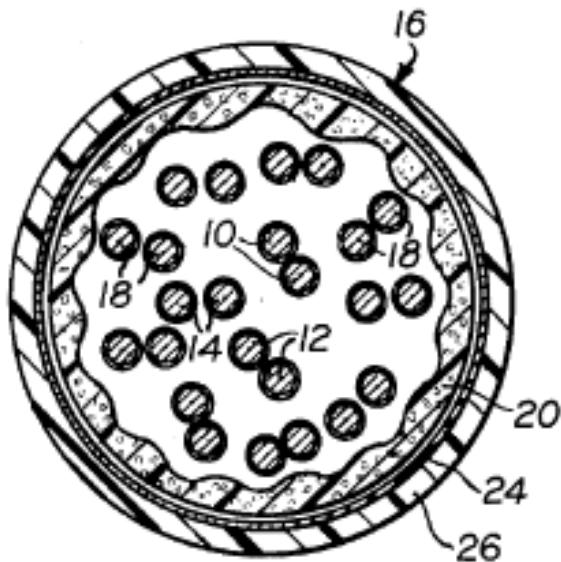
- Roberts – shielding groups of **straight-line** conductors



'095 Ground 5 – Roberts In Combination – Not Obvious

- GmbH-866 – **no** twisted pairs
- Jachimowicz – **no** motivation to modify Roberts

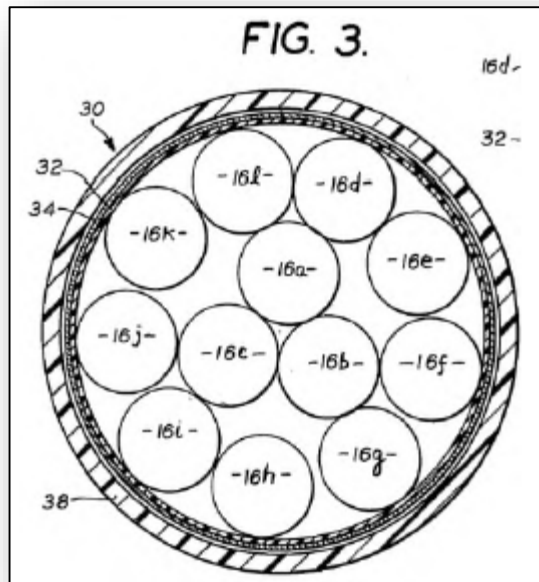
FIG. 1.



The **shield 24** is preferably a longitudinally applied folded aluminum or copper tape held around the unit **16** by a plastic insulating tape **26** applied helically with an overlap or the helical tape may be applied over the longitudinal shield and may be of the same metal as the longitudinal shield, as previously explained.

'095 Ground 5 – Roberts In Combination – Not Obvious

- Jachimowicz – **no** motivation to modify Roberts



show the pairs 18 within the unit 16f. 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.

'095 Ground 5 – Roberts In Combination – Not Obvious

- **No** motivation to modify Roberts

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

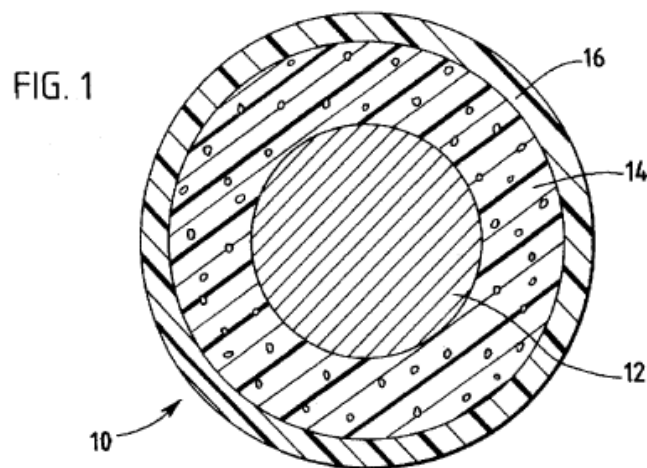
'095 Grounds 2, 4-6, 8 – Various Combinations – Not Obvious

- Addition of Jachimowicz and/or Gingue

Ground	Petition's Theories
2	Modify Roberts "to include a substantially flat dielectric foamed polymer tape in view of <u>Gingue</u> and/or <u>Jachimowicz</u> , either instead or in addition to the non-foamed plastic coating on shield 15, on either one or both sides of the shield." Pet. 34, 39.
4	Modify GmbH-866 "[i]n view of the further teachings of <u>Jachimowicz</u> and/or <u>Gingue</u> . . . to include a substantially flat dielectric foamed polymer tape, either instead or in addition to the non-foamed plastic coating on <u>shieldings</u> 11, 12." Pet. 53, 57-58.
5	Relies on Ground 2. Pet. 59.
6	Relies on Ground 4. Pet. 61.
8	Modify <u>Yanagita</u> "[i]n view of the further teachings of <u>Jachimowicz</u> and/or <u>Gingue</u> . . . by laying substantially flat dielectric foamed polymer tape alongside <u>Yanagida's</u> core material 2 along with the laying of the twisted pairs." Pet. 73, 76.

'095 Grounds 2, 4-6, 8 – Various Combinations – Not Obvious

- Gingue



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

IPR2023-01061 and IPR2023-01062

● Citation Mapping

Slide	IPR2023-01061 ('537 Patent)	IPR2023-01062 ('095 Patent)
2	'537 POR 4-5, 16; '537 Patent FIG. 4, Claim 19	N/A
3	'537 POR 18-19, 21-22; '537 SR 4; Eldering ¶¶ 105-109, 160; <u>Beggs</u> (EX-1015) 5:64-6:14, 6:52-56, FIGS. 6, 7	N/A
4	'537 POR 20-22; '537 SR 4; Eldering ¶¶ 105-108, 160; <u>Beggs</u> 5:64-6:14, 6:52-56, FIGS. 6, 7	N/A
5	'537 POR 20-22; '537 SR 4-5; Eldering ¶¶ 108-109, 161-163, '537 Reply 4; <u>Beggs</u> claims 18 and 19	N/A
6	'537 POR 21-22; '537 SR 2-4; Eldering ¶ 109, '537 Reply 3-4	N/A
7	'537 POR 22-23; '537 SR 5-6; <u>Jachimowicz</u> (EX-1014) 2:46-59, 3:50-52, FIG. 1	'095 POR 68-69; '095 SR 26-27; <u>Jachimowicz</u> (EX-1014) 2:46-59, 3:50-52, FIG. 1
8	'537 POR 22-23; '537 SR 5-6; <u>Jachimowicz</u> 2:46-59, 3:50-52, FIG. 1	'537 POR 67-68; '095 SR 26-27; <u>Jachimowicz</u> 2:46-59, 3:50-52, FIG. 1
9	'537 POR 26-27; EX-2004 106:16-112:1	'095 POR 70-71; EX-2004 106:16-112:1
10	'537 SR 1-2; '537 Pet. 17	N/A
11	'537 POR 24-25; '537 SR 7; '537 Pet. 28; Eldering ¶¶ 110-117, 164-167	'095 POR 69-71; '095 SR 27-28, Eldering ¶¶ 187-188
12	'537 POR 24-25; EX-2004 116:8-117:15	'095 POR 70; EX-2004 116:8-117:15
13	'537 POR 28-34; '537 SR 8-10; Eldering ¶¶ 111-112, 118-127, 160-163, 166-171; '537 Reply 8	N/A
14	'537 POR 35-48; '537 SR 10-19; '537 Patent FIG. 4, Claim 19	'095 POR 31-41, 66-72; '095 SR 8-18, 26-28; '095 Patent FIG. 4, Claims 27, 31
15	'537 POR 9-15; '537 SR 10-12; EX-1080 ¶¶ 9-11; EX-2013 80:19-81:6	'095 POR 7-12; '095 SR 8-10; EX-1081 ¶¶ 9-11; EX-2013 80:19-81:6
16	'537 POR 40-43; '537 SR 11, 15; Eldering ¶¶ 65-67, 158-159, 179-180; <u>Yanagita</u> (EX-1012) 1 (col. 1)	'095 POR 34-35; '095 SR 9, 12-13; Eldering ¶¶ 65-67, 147-148, 170-171; <u>Yanagita</u> (EX-1012) 1 (col. 1)
17	'537 Pet. 40	'095 Pet. 65-66
18	'537 POR 44-45; '537 SR 16-17; Eldering ¶¶ 68-69, 71-73, 182; <u>Yanagita</u> 1 (col. 1)	'095 POR 36-39; '095 SR 15; Eldering ¶¶ 68-73, 147-148; <u>Yanagita</u> 1 (col. 1)

IPR2023-01061 and IPR2023-01062

● Citation Mapping

Slide	IPR2023-01061 ('537 Patent)	IPR2023-01062 ('095 Patent)
19	'537 POR 44-45; '537 SR 12-13, 16-17; EX-1080 ¶ 50; EX-2013 137:14-138:6, 138:19-139:12	'095 POR 37; '537 SR 10, 14-16; EX-1081 ¶ 61; EX-2013 137:14-138:6, 138:19-139:12
20	'537 Pet. 40	'095 Pet. 65-66
21	'537 POR 46-47; '537 SR 13-15; Eldering ¶¶ 65-67, 74-76; <u>Yanagita 1</u>	'095 POR 39-40; '095 SR 12-14; Eldering ¶¶ 65-67, 74-76; <u>Yanagita 1</u>
22	'537 POR 46-47; '537 SR 13-15; Eldering ¶¶ 65-69, 74-76; <u>Yanagita 1</u>	'095 POR 39-40; '095 SR 12-14; Eldering ¶¶ 65-67, 74-76; <u>Yanagita 1</u>
23	'537 PO Motion (Paper 37) 1-5; '537 PO Motion Reply (Paper 40) 1-5	'095 PO Motion (Paper 36) 1-5; '095 PO Motion Reply (Paper 39) 1-5
24	'537 POR 50-52, 62-63; '537 SR 23; Eldering ¶¶ 187-188; '537 Pet. 48-49; GmbH-866 (EX-1010) FIG. 1; EX-2004 58:1-64:12, 157:2-158:9, 190:13-191:9	'537 SR 23; '095 Pet. 41-42; GmbH-866 (EX-1010) FIG. 1; EX-2004 58:1-64:12, 157:2-158:9, 190:13-191:9
25	'537 Pet. 58-59	'095 Pet. 43
26	'537 POR 57-58; Eldering ¶¶ 83-87; '537 Pet. 58-59; GmbH-866 3	'095 POR 44-46; Eldering ¶ 83-87; '095 Pet. 43; GmbH-866 3
27	'537 POR 55-57; '537 SR 23-24; Eldering ¶¶ 80-82	'095 POR 42-44; '095 SR 22-23; Eldering ¶¶ 80-82
28	'537 POR 55-57; '537 SR 23-24; '537 Reply 27; EX-2004 160:15-163:2, 213:3-214:2	'095 POR 42-44; '095 SR 22-23; '095 Reply 20; EX-2004 160:15-163:2, 213:3-214:2
29	'537 POR 57-59; Eldering ¶¶ 83-88	'095 POR 44-46; Eldering ¶¶ 83-88
30	'537 SR 24-25; '537 Reply 23-24	'095 SR 23-24; '095 Reply 16
31	'537 SR 19-22; EX-1057 marked p. 4; EX-2009 3; EX-1010 marked p. 3	'095 SR 18-21; EX-1057 marked p. 4; EX-2009 3; EX-1010 marked p. 3
32	'537 SR 20-22; EX-2012 ¶ 334	'095 SR 19-21; EX-2012 ¶ 334
33	'537 PO Opposition (Paper 38) 1-11	'095 PO Opposition (Paper 37) 1-11
34	N/A	'095 POR 15-16; '095 Patent FIG. 4, Claim 27
35	N/A	'095 POR 17; EX-2004 92:22-93:14

IPR2023-01061 and IPR2023-01062

● Citation Mapping

Slide	IPR2023-01061 ('537 Patent)	IPR2023-01062 ('095 Patent)
36	N/A	'095 POR 18; '095 SR 2-3; EX-2005 1:47-64
37	N/A	'095 POR 18-19; EX-2005 2:7-15, 50-54
38	N/A	'095 POR 18-19; EX-2005 2:50-54, 5:56-62, FIG. 3
39	N/A	'095 POR 20-23; '095 SR 6-8; Eldering ¶¶ 47; Roberts (EX-1009) 1:5-31
40	N/A	'095 SR 4-6; Eldering ¶¶ 51-52, 102-103, 165; Roberts 1:13-23, 12:71-13:9
41	N/A	'095 SR 4-6; Eldering ¶¶ 51-52, 102-103, 165; Roberts FIG. 24
42	N/A	'095 SR 4-6; EX-1081 ¶¶ 34-36, 67
43	N/A	'095 SR 4-6; EX-1081 ¶¶ 34-36, 67
44	N/A	'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162; Roberts FIG. 1
45	N/A	'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162; Roberts FIG. 2
46	N/A	'095 POR 21-23; '095 SR 6-7; Eldering ¶¶ 45-49, 147-148, 159-162; Roberts FIG. 3
47	N/A	'095 POR 23-24; Eldering ¶¶ 45-49, 147-148, 159-164; Roberts FIG. 3
48	N/A	'095 POR 26-28; Eldering ¶¶ 57-59, 147-148; Roberts FIG. 23
49	N/A	'095 POR 54-55, 58-59; Eldering ¶¶ 175-176; <u>Jachimowicz 2:54-65, FIG. 1</u>
50	N/A	'095 POR 54-55, 58-59; Eldering ¶¶ 175-176; <u>Jachimowicz 3:45-49, FIG. 3</u>
51	N/A	'095 POR 62-63; Eldering ¶¶ 106-107; Roberts Abstract
52	N/A	'095 POR 66-67
53	'537 POR 34-35; Eldering ¶¶ 173-174; EX-1013 5:24-29	'095 POR 67; Eldering ¶¶ 180-181; 173-174; <u>Gingue (EX-1013) 5:24-29</u>