

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC.

Petitioner

v.

BELDEN INC.

Patent Owner

IPR2023-01056

U.S. Patent No. US 9,991,030

**EXPERT DECLARATION OF KENNETH CORNELISON IN SUPPORT
OF PETITIONER REPLY**

I, Kenneth Cornelison, declare as follows.

I. INTRODUCTION

342. I have been retained by Petitioner, CommScope Technologies LLC, (“CommScope” or “Ppetitioner”) to provide expert opinions in connection with the *inter partes* review (“IPR”) proceeding before the United States Patent and Trademark Office involving U.S. Patent No. 9,991,030 (“the ‘030 Patent”). On June 11, 2023, I submitted a first declaration in support of the Petition for Inter Partes Review of U.S. Patent No. 9,991,030 (“First Declaration”). EX-1006 ¶¶1-

341. I did not find the arguments in the Patent Owner response and Eldering declarations persuasive, and the arguments did not change my opinion that the challenged claims are invalid as anticipated and obvious as set forth in my First Declaration.

343. I submit this Declaration in Support of the Petitioner Reply. The statements made herein are based on my own knowledge and opinions.

II. QUALIFICATIONS

344. My qualifications and background are provided in my First Declaration and my curriculum vitae I included along with my First Declaration.

III. MATERIALS CONSIDERED

345. My technical review, analysis, insights, and opinions are based on my experience and other qualifications discussed in my First Declaration, as well as

my study of relevant materials. I have reviewed all the material identified in my First Declaration. I have also reviewed both of Dr. Eldering's declarations and the exhibits hereto. I have also reviewed the Patent Owner's response. I have also reviewed the transcript of Dr. Eldering's deposition.

IV. RELEVANT LEGAL PRINCIPLES

346. The relevant legal standards and my opinion regarding the level of a person of ordinary skill in the art ("POSITA") are provided in my First Declaration. My opinions in this declaration are based on the same legal standards and experience of a POSITA as described in my First Declaration. Throughout my declaration, even if I discuss my analysis in the present tense, I am always making my determinations based on what a POSITA would have known at the time of the invention.

V. COOK AS THE PRIMARY REFERENCE (GROUNDS 1-2)

347. Dr. Eldering suggests that Ground 1 requires combining multiple figures such as "Figs. 8D and 11." Eldering 1st Decl. ¶¶35, 42. That is incorrect.

348. Dr. Eldering read Ground 1 too narrowly. My opening declaration for Ground 1 asserts that "shield 120" is the claimed barrier tape. EX-1006 ¶81. Cook's figures (e.g., Figs. 8D and 11) certainly corroborate Cook's disclosure, but they do not limit Cook's disclosure for shield 120. Cook explicitly states: "the

drawings are provided to illustrate example embodiments described herein and are not intended to limit the scope of the disclosure.” EX-1010 at 2:32-36.

349. Cook’s description of shield 120, the specific component I identified in my opening declaration as being a barrier tape as stated in the claims, anticipates even without the figures. Cook describes the suitable materials and construction for shield 120, including “continuous” conductive material:

As explained in greater detail below, a wide variety of suitable materials may be utilized to form a shield, such as shield 120....For example, electrically conductive material (e.g., a metallic material, an alloy, etc.), whether continuous or comprising electrically conductive patches or sections, can be disposed on a substrate or dielectric material.

EX-1010 at 6:50-7:15. Cook also teaches to select the suitable technique for forming the shield 120, including having the conductive material “sandwiched” between dielectric layers:

A wide variety of suitable methods or techniques may be utilized to form a shield, such as shield 120. ...electrically conductive material may be sandwiched between multiple dielectric layers in order to form a shield

EX-1010 at 7:10-20. Cook further teaches to select the suitable span for the conductive material in shield 120, including:

As set forth above, a shield layer, such as shield layer 120, a separator 110, and/or various separator segments may include any number of patches of electrically conductive material. ... In certain embodiments, the electrically conductive patches may span fully across a separator segment (or shield layer) in the longitudinal direction. In other embodiments, a plurality of discontinuous patches

may be incorporated into a separator segment (or shield layer). Additionally, in certain embodiments, the patches may span fully across a width of a separator 110 or shield layer. In other embodiments, patches may span around a circumference or other periphery of a separator 110. In yet other embodiments, at least portions of a separator segment may include relatively solid (or impregnated, blended, etc.) conductive material.

EX-1010 at 11:64-12:19. Thus, Cook's text teaches to select all three requirements of the shield 120 in the '030 Patent: the material and construction (e.g., continuous conductive material on dielectric material), the technique (e.g., sandwiched), and the span (e.g., fully across). This discloses all three of the disputed requirements of the claimed barrier tape. Thus, in my opinion, Dr. Eldering is wrong that Cook requires combining any figures.

350. Dr. Eldering's argument is also incorrect because, based on the evidence I cited in my First Declaration, Cook's shield 120 in view of Figure 8D alone is sufficient to anticipate without relying Figure 11 (or the other figures) in Cook. Cook's text, as noted above, explains that the conductive material in shield 120 may be "sandwiched" between the dielectric layers. EX-1010 at 7:10-20. This only leaves the issue of what shape the conductive material has (i.e., its configuration relative to the sandwiching dielectric layers). Cook broadly teaches that "as desired" the conductive material may have "wide variety of different shapes and/or orientations," including those in Figures 8A-8D, and that these

different arrangements of the conductive material can be “utilized in various embodiments” shown in Cook:

As desired, patches of electrically conductive material incorporated into a separator, a separator segment, or a shield layer may have a wide variety of different shapes and/or orientations. FIGS. 8A-8D illustrate example configurations for electrically conductive material or patches that may be utilized in various embodiments.

EX-1010 at 22:62-67. Figures 8A-8D show four exemplary shapes of the conductive material (relative to dielectric material), all of which extend to the lateral edges (top and bottom) of the dielectric material under Patent Owner’s interpretation:

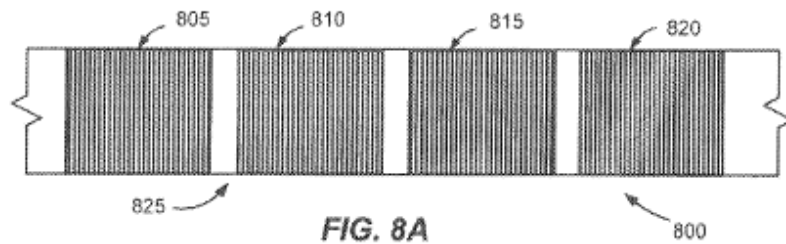


FIG. 8A

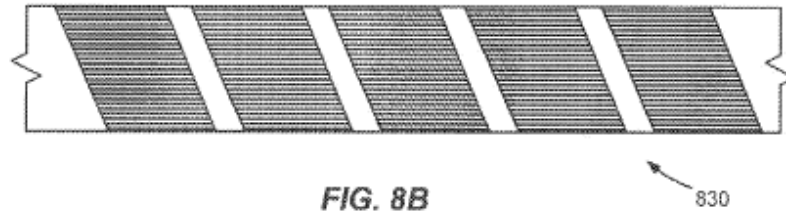


FIG. 8B

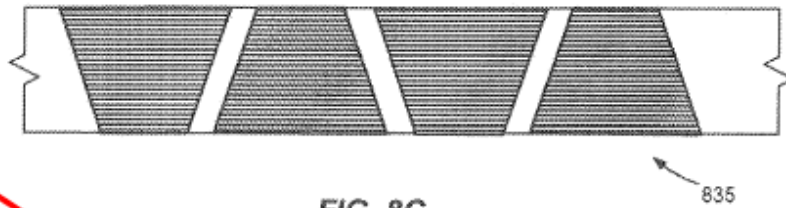


FIG. 8C

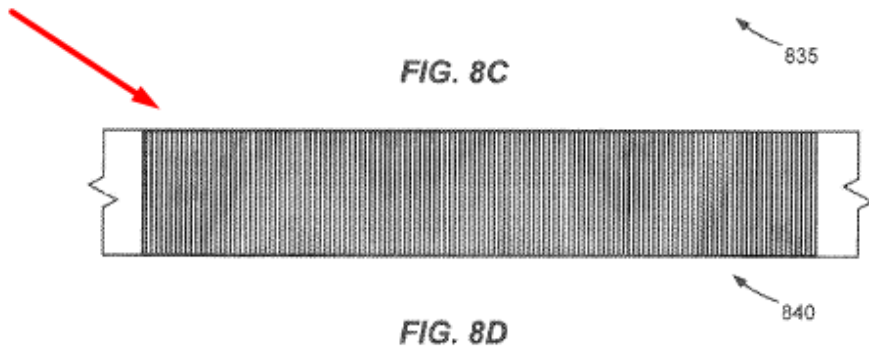


FIG. 8D

Figure 8D shows the conductive material may be both continuous and extends to the lateral edges (of the dielectric). In the embodiment of shield 120 (described in the text of Cook as explained above) where the conductive material is sandwiched between two layers of dielectric, when the conductive material “as desired” has the shape shown in Figure 8D, that embodiment has all three of the disputed

requirements of the claimed barrier tape because the conductive material is sandwiched, continuous, and extends to the lateral edge.

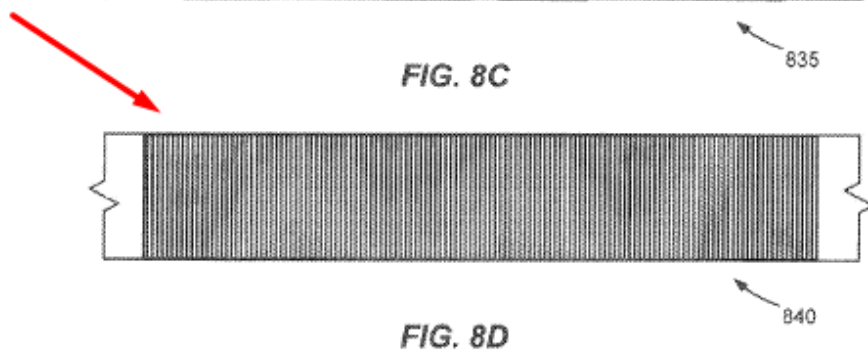
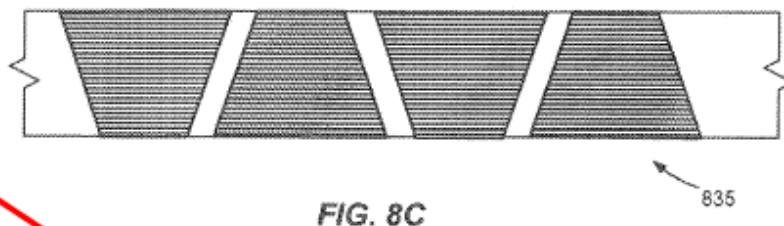
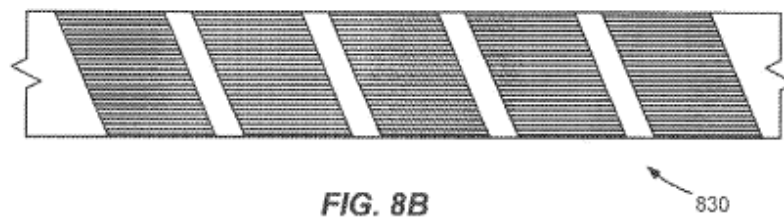
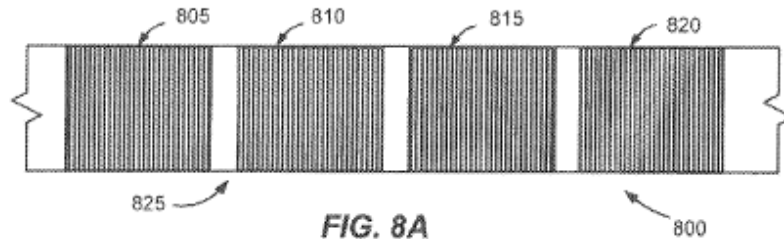
351. A POSITA would not consider Cook's shield 120 in view of Figure 8D to be combining different embodiments. Keep in mind that, in the embodiment where the conductive material in shield 120 is sandwiched between the dielectric layers, the conductive material must have a shape and orientation. Cook teaches that "as desired" the conductive material may have the shape in Figure 8D (EX-1010 at 22:62-67), which includes the disclosed embodiment of shield 120 where the conductive material is sandwiched between dielectric layers. Consistent with this, Cook expressly states that Figure 8D may be "utilized in various embodiments" (EX-1010 at 22:62-67), which includes the disclosed embodiment of shield 120 where the conductive material is sandwiched between dielectric layers. Thus, everything in this example comes back to the same single embodiment of shield 120 where the conductive material is sandwiched between dielectric layers.

352. Dr. Eldering suggests that I admitted the conductive material in Figure 8D is "not continuous." Eldering 1st Decl. ¶50. That is not true. Dr. Eldering cites my annotation of Figure 8D in Paragraph 87 of my First Declaration. That annotation addresses an alternative interpretation of the lateral edge limitation, not the continuous limitation. I provided this annotation "in the event" lateral edges

were interpreted to be the left and right edges instead of the top and bottom edges.

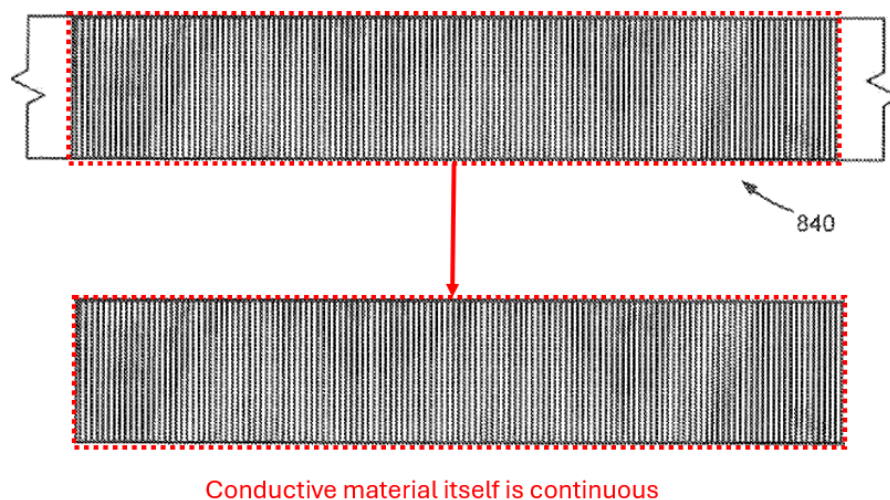
EX-1006 ¶87.

353. Contrary to Dr. Eldering's argument, the conductive material in Figure 8D is plainly continuous. Compare Figures 8D (bottom) to Figures 8A-8C:



The conductive material (840) in Figure 8D has no discontinuities or gaps (825) like the conductive material (805, 830, 835) in other Figures 8A-8C.

354. Here is an annotation. Keep in mind that the white in Figure 8D shows the dielectric layer below the conductive material. If you focus on the conductive material, the conductive material is plainly continuous:



355. Dr. Eldering notes that Cook describes Figure 8D as “relatively” continuous. A POSITA understands from the Cook text (e.g., 6:50-57 and 11:64-12:19), “relatively continuous” is a type of continuous. See, e.g., EX-1010, 6:52-56 (describing continuous conductive materials such as a “braid” and “foil”). If Dr. Eldering is suggesting that “relatively continuous” actually means discontinuous, I disagree. Cook only describes Figures 8A-8C as discontinuous: “A few non-limiting examples of patch patterns that may be utilized in a discontinuous shield are described in greater detail below with reference to FIGS. 8A-8C.” EX-1010, 8:6-9. A POSITA would understand that Figures 8D was left out because it is not discontinuous.

356. Dr. Eldering missed an important point. Cook explains the conductive material may be either (1) multiple patches with gaps between them or (2) a single patch. Cook explains:

As set forth above, a shield layer, such as shield layer 120, a separator 110, and/or various separator segments may include any number of patches of electrically conductive material. For example, a single electrically conductive or metallic patch may form a relatively continuous shield along a longitudinal length of a shield layer or a separator segment. Alternatively, a plurality of electrically conductive patches may be provided that are electrically isolated from one another to provide one or more shielding segments.

EX-1010, 11:64-12:5.

357. Figures 8A-8C show multiple (plural) patches with gaps between the plural patches. Cook. EX-1009, 22:67-23:10 (“With reference to Fig. 8A... Any number of rectangular patches of electrically conductive material, such as patches 805, 810, 815, 820, may be formed... any desired gap or separation distance may be provided between adjacent patches”), 23:12-16 (“FIG. 8B...may include any number of electrically conductive patches”), 23:49-52 (“FIG. 8C...may include any number of metallic patches”).

358. By contrast, Figure 8D includes a singular patch running along a longitudinal length: “FIG. 8D...may include a relatively continuous patch of electrically conductive material running along a longitudinal length of the separator 840.” EX-1010, 23:58-62. Cook earlier explains: “For example, a single electrically conductive or metallic patch may form a relatively continuous shield

along a longitudinal length of a shield layer or a separator segment.” EX-1010, 11:67-12:2.

359. When there is one patch or a single patch as shown in Figure 8D, plainly, the conductive material itself is continuous because there is only one patch without any gaps in the material. Cook, however, notes that the overall shield formed by the single patch is relatively continuous:

For example, a single electrically conductive or metallic patch may form a relatively continuous shield along a longitudinal length of a shield layer or a separator segment.

EX-1010, 11:64-12:5.

The separator segment 840 may include a relatively continuous patch of electrically conductive material running along a longitudinal length of the separator 840. As desired, a dielectric end may be positioned at one end of the segment 840. With a shield layer, a relatively continuous shield may be performed and, as desired, the electrically conductive material may be grounded at either end when a cable incorporating the shield layer is installed.

EX-1010, 23:60-67. This is because “a dielectric end may be positioned at one end” of the patch as shown in Figure 8D. EX-1010, 23:60-64. Thus, a POSITA would understand that the term “relatively” acknowledges that the overall shield may have a dielectric end before or after the single patch of continuous conductive material.

360. The issue in ‘030 claim 1, however, is whether the conductive material in the barrier tape of ‘030 is continuous. The claim states: “barrier tape

comprising a continuous conductive material”. Figure 8D plainly shows the conductive material is continuous. Furthermore, Cook qualifies that the dielectric end is merely an optional feature that “may” be included. EX-1010, 23:60-67. When the dielectric end is not included, both the conductive material in Figure 8D and the overall shield 120 along the entire length of the cable are both fully continuous.

361. Nothing in the ‘030 claims exclude adding a dielectric end before or after the continuous conductive material. The only requirements in the claims about the conductive material compared to the dielectric layers are that the conductive material be (a) between dielectric layers and (b) extend to the lateral edges of the dielectric layers. There is no other requirement. Even if there were, Cook explains that “may” covers both including and not including the feature (i.e., including a dielectric end or not including a dielectric end): “Conditional language, such as, among others, ‘can,’ ‘could,’ ‘might,’ or ‘may,’ unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments could include, while other embodiments do not include, certain features, elements, and/or operations.” EX-1010, 25:64-26:2.

362. I also note that Dr. Eldering never proposed any special construction for the term “continuous” conductive material. I also did not locate any special

definition of “continuous” in the ‘030 patent. A POSITA would understand that the ordinary meaning of “continuous conductive material” simply means that the conductive material has no discontinuities. A POSITA would not apply a special definition that the conductive material must both have no discontinuities *and* extend to the end of the tape or both have no discontinuities *and* have no dielectric end. The ordinary meaning of “continuous conductive material” simply means that the conductive material has no discontinuities and does not state any additional special requirements.

363. The conductive material (840) in Figure 8D is both physically and electrically continuous. There are no physical discontinuities in the conductive material. There are also no electrical discontinuities in the conductive material. Rather, the entire material is conductive and there are no gaps in the material to interrupt that conductivity.

364. Lastly, I understand that Board stated in the insitution decision:

Although anticipation may rest on teachings from different embodiments within a single reference, particularly where the reference contemplates combining teachings from separate embodiments, Kennametal, Inc. v. Ingersoll Cutting Tool Co., 780 F.3d 1376 (Fed. Cir. 2015), Petitioner has not adequately on this record directed us to any portions of Cook that indicate that Cook’s various embodiments are intended to be combined or interpreted in the manner proposed by Petitioner.

Paper 7 at 16-17. Cook also discloses combining its teachings. Cook expressly teaches: “Embodiments of the disclosure contemplate a wide variety of other

cables and cable constructions” and “other cables may include alternative shielding arrangements.” EX-1010 at 15:50-52, 17:12-13. Cook emphasizes that its figures are “not intended to limit the scope of the disclosure” and that the embodiments “may utilize elements and/or components other than those illustrated in the figures.” EX-1010 at 29-36. Cook broadly teaches: “In other embodiments, any combination of shielding arrangements may be utilized” and “a wide variety of suitable electrically conductive materials or combination of materials may be utilized to form a shield.” EX-1010 at 3:59-61, 7:25-27.

365. Thus, although combining figures is not essential to my analysis for the reasons explained above, a POSITA would certainly understand that Cook contemplates combining the features in Cook’s figures cited for the barrier tape element (shield 120). Although not necessary to my opinions (for the reasons discussed above), a POSITA would immediately understand, for example, that Figures 7A-7C can be combined with Figures 8A-8D. A POSITA reading Cook would encounter Figure 7A-7C in Column 22. Figures 7A-C illustrate different options for placing the conductive material on dielectric layers, including sandwiching the conductive material between dielectric layers. Right after the description of these figures, in the same column, a POSITA reading Cook would encounter the broad teaching discussed above that “as desired” shapes of conductive material may have a variety of shape, including the examples in Figures

8A-8D, and the shapes may be incorporated into the “various” embodiments. A POSITA would immediately understand that this includes the embodiments just discussed in the preceding paragraphs for Figures 7A-7C.

366. In Dr. Eldering’s second declaration dated March 25, 2024, he discusses two patent applications that Cook incorporates by reference. Those patent applications are U.S. Application No. 12/313,914, which issued as U.S. Patent No. 7,923,641 (“Smith”) (EX-2013) and U.S. Application No. 12/653,804, which issued as U.S. Patent No. 8,450,606 (“McNutt”)(EX-2006). McNutt says that it is a continuation-in-part Smith. McNutt describes a shielded communications cable having conductor pairs that may be separated by a separator and a shielding tape that surrounds the conductive pairs. See e.g., FIG.1A; Col. 4:53 – Col. 5:18. Many of the disclosed shielding tapes include a dielectric substrate (e.g., substrate 150) with isolated conductive patches (e.g., patches 175) formed on one or more surfaces of the dielectric substrate. See e.g., FIGS. 1A, 2A, 4A, 5A; Col. 5:12-18. Figure 8B in McNutt discloses a shielding tape that further includes a continuous metal layer 810 coated directly on top of the dielectric substrate 150 and underneath the conductive patches 175. Col. 17:27-33. The metal layer 810 is continuous and extends across the entire width of the tape to the opposing long edges of the dielectric substrate. McNutt states that the continuous metal layer 810 can be applied to any of the shields or shielding tapes that are

disclosed in McNutt. Col. 18:30-38. Thus, a POSITA would understand that McNutt, like the disclosure of the Cook Patent, discloses both continuous conductive layers as well as discontinuous conductive layers (i.e., isolated patches) that are applied onto a dielectric substrate, and with the conductive layers extending to the long edges of the dielectric layer.

VI. GLEW AS THE PRIMARY REFERENCE (GROUNDS 3-4)

367. My First Declaration explains that Glew anticipates (Ground 3), or in the alternative, renders the claims obvious (Ground 4).

368. Dr. Eldering's declarations contain multiple inaccuracies. As background, in my First Declaration, I explained that a POSITA would have found Claims 1-3, 9-14, 16-18 obvious in view of Glew and Cook and/or the knowledge of a POSITA. I explained that a POSITA would find it obvious to make Glew's disclosed layers flush with each other, including having Glew's metal layer extend to the longitudinally-extending side edges of the dielectric layers in FIG. 13C. I explained doing so would be "generally simpler and cheaper to manufacture." EX-1006 ¶178. This refers back to my analysis about using "slitting machines" to manufacture tape. EX-1006 ¶138. Slitting machines use knives, cutters, blades, or similar tools to make straight, flush cuts through the tape layers along the length of the material.

369. Dr. Eldering suggests that I “acknowledged” there are “several different conventional manufacturing techniques” for making a tape with different widths. Eldering 2nd Decl. ¶160. This is incorrect. First, I explicitly explained during my deposition that Glew would require “customization”:

Q. The manufacturing processes laid out in Glew, those would work to produce the multilayer tape shown in Figure 13C; correct?

A. With -- the manufacturing processes were described in general. And in order to make a 13C-type tape as shown that would physically be as 13C is shown would require some customization, process control, configuration in order to accomplish that task.

EX-2011 at 88:14-22. Second, Dr. Eldering is conflating techniques for (a) bonding the layers together with (b) sizing the layers. Dr. Eldering provided long quotes that describe different techniques for bonding the layers (e.g., thermal bonding, welding, etc.). But, regardless of how the layers are bonded, the tape must be sized to correct width. As noted in my First Declaration, the well-known and simplest and efficient way to size the tape is to feed it through a slitter, as a POSITA would have known and I know from firsthand experience. See, e.g., EX-1049, 4:43-45 (“It is usual to fabricate the inner jacket made of sandwich tape from

wide sheets of material which are then slit to the desired width for economy of fabrication. In such construction, the edges of the foil are exposed.”).

370. Dr. Eldering also quibbles about the background references I cited regarding slitting machines. He says the particular tapes in those background references I cited regarding slitting machines are discontinuous, not continuous. I cited those references for context about slitting machines, not for the precise tape configurations used in those references. To be clear, I know from firsthand experience that slitting machines are used with many types of tapes, including continuous tapes. For example, I know from firsthand experience that slitting machines are used for Zetabon, which is a tape with continuous conductive material. The benefit of slitting machines—easy sizing of tapes—is not somehow limited to discontinuous tapes. Continuous tapes also need to be cut to size.

371. Dr. Eldering also argues a POSITA would be “discouraged” from modifying Glew’s tape 310 because that would result in “exposed” edges of conductive material. E.g., Eldering 2nd Decl. ¶169. By “exposed” edges, I presume he means edges of conductive material exposed to the electrical conductors within the cable.

372. Glew is not concerned with having “exposed” conductive material to the electrical conductors. Consider the configuration in Figure 10A:

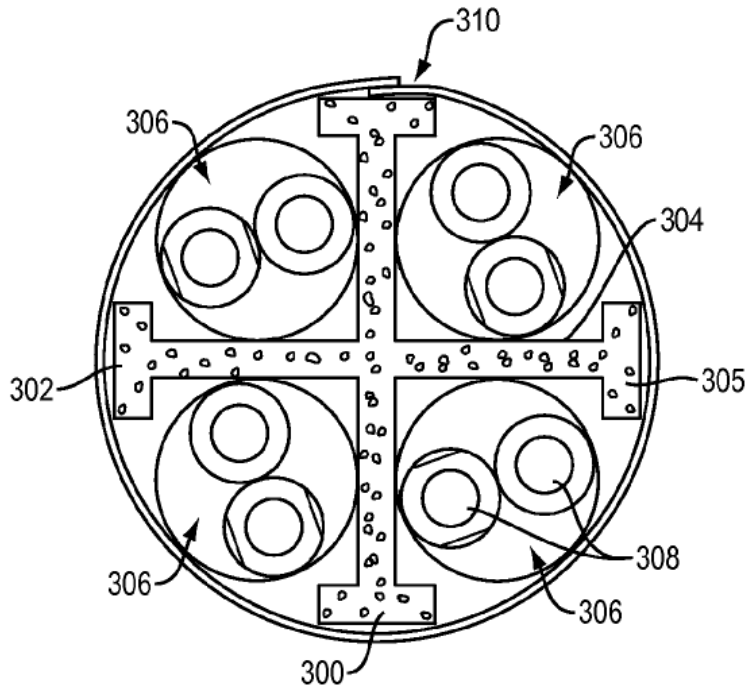


FIG. 10A

The electrical conductors are elements 308. Glew teaches to include the cross-shaped separator (300) in the midst of the electrical conductors. Glew explicitly teaches that separator has “metal inclusions” distributed throughout the separator, i.e., conductive material, and can be conductive along the length of the separator similar to a metal separator of the same shape. EX-1008 ¶¶120-140, 154 (Glew disclosing, among other things, that the separator with its metal inclusions (e.g., metal such as copper or aluminum) exhibits electrical conductivity in a range including about 3.5×10^7 Siemens/meter, which a POSITA would understand to be about the conductivity of aluminum). EX-1008, ¶¶[0120]-[0140], [0154].¹ These

¹ Figures 1-2 show a closer view of the metal inclusion feature.

metal inclusions are the granule-shapes shown inside element 300 in Figure 10A above. Glew expresses no concern that the separator that is exposed to the electrical conductors has exposed conductive material (metal inclusions). Rather, Glew expressly designed the separator with its exposed surfaces to be conductive.

373. Glew goes farther and teaches it is okay to add even more conductive material to the separator exposed to the electrical conductors. Glew explains: “In some embodiments, rather than or in addition to distributing metal inclusions within a separator, an outer surface of a separator can be coated with an electrically conductive material, e.g. it can be metallized, to provide electromagnetic shielding.” EX-1008 ¶149. Glew explains the metal coating can be highly conductive material such as copper or aluminum. EX-1008 ¶149. (“By way of example, the metal coating can be formed of any of copper, silver, aluminum, copper, gold, bronze, tin, Zinc, iron, nickel, indium, gallium, or stainless steel.”). Glew illustrates an example of this Figure 8A where the metal coating (100) covers “substantially usually the entire outer surface.” EX-1008 ¶149. Here is an annotation showing that metal coating (100) in red:

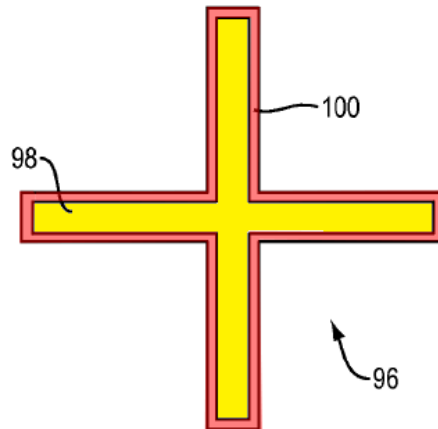


FIG. 8A

Recall the separator is directly exposed to the electrical conductors. Figure 6A shows this:

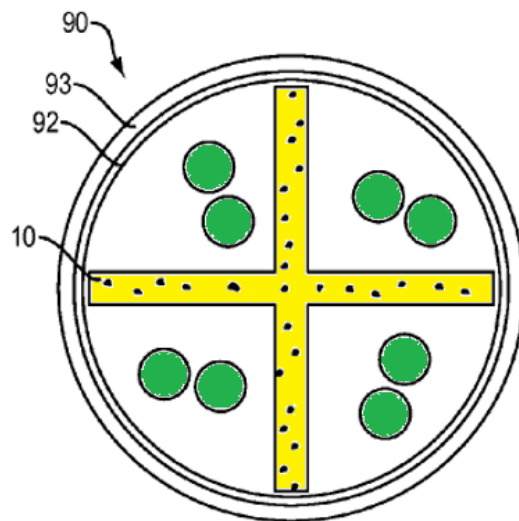


FIG. 6A

Here is an annotation showing Glew's teaching that the cross-shaped separator can be coated with metal (red) (with the separator of FIG. 8A inserted in the cable of FIG. 6A):

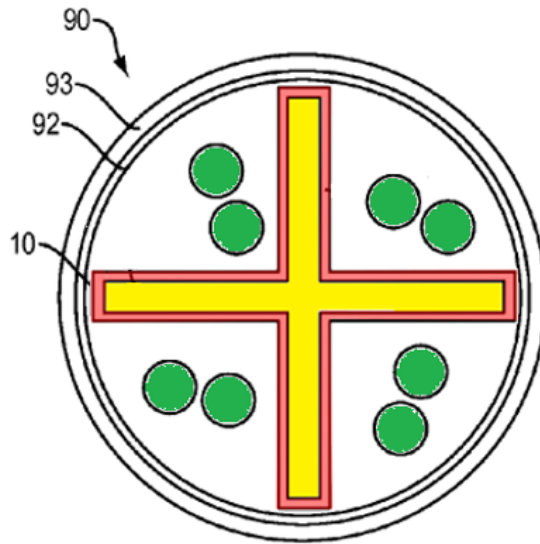


FIG. 6A

Note that Glew allows for all edges/surfaces of the conductive separator to be exposed to electrical conductors (green) even though the edges/surfaces are metal and electrically conductive. Thus, contrary to Dr. Eldering's argument, Glew expressly allows for exposed edges.

374. Dr. Eldering's argument is also wildly out of perspective. He is arguing that a POSITA would be discouraged from having the edge at the red arrow in Glew be exposed to the conductors:

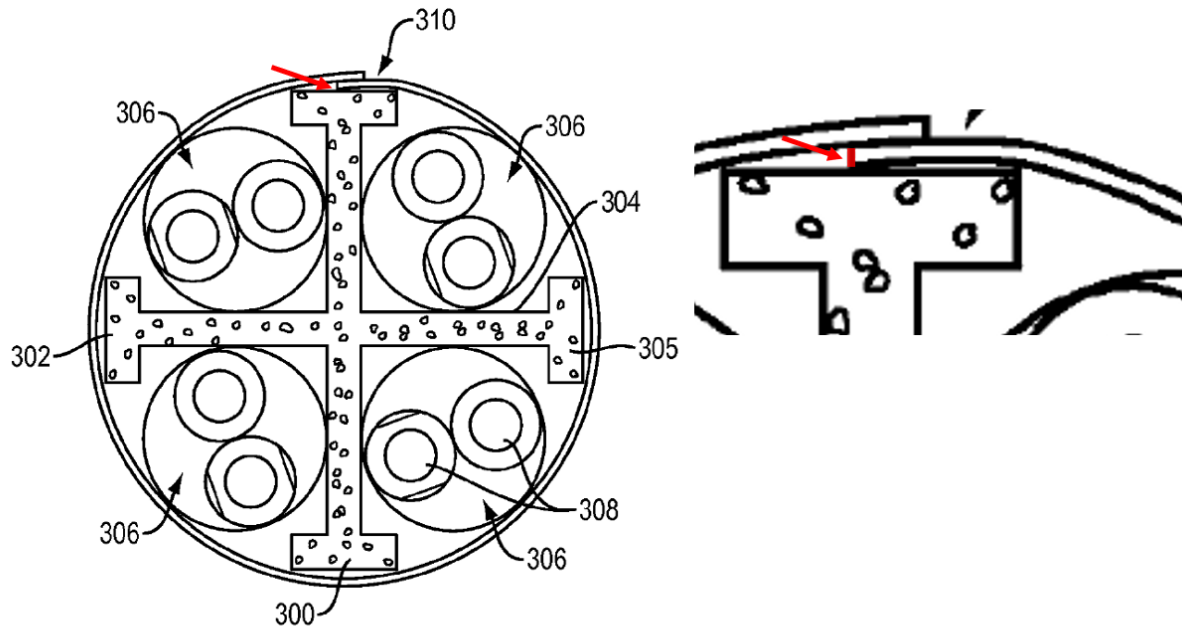


FIG. 10A

As shown, the edge that is the subject of Dr. Eldering's concern is not even exposed to the conductors because it is separated from conductors by the separator (305). But, even if it was exposed, compare the size of that edge (left) to size of the conductive separators and their conductive edges/surfaces:

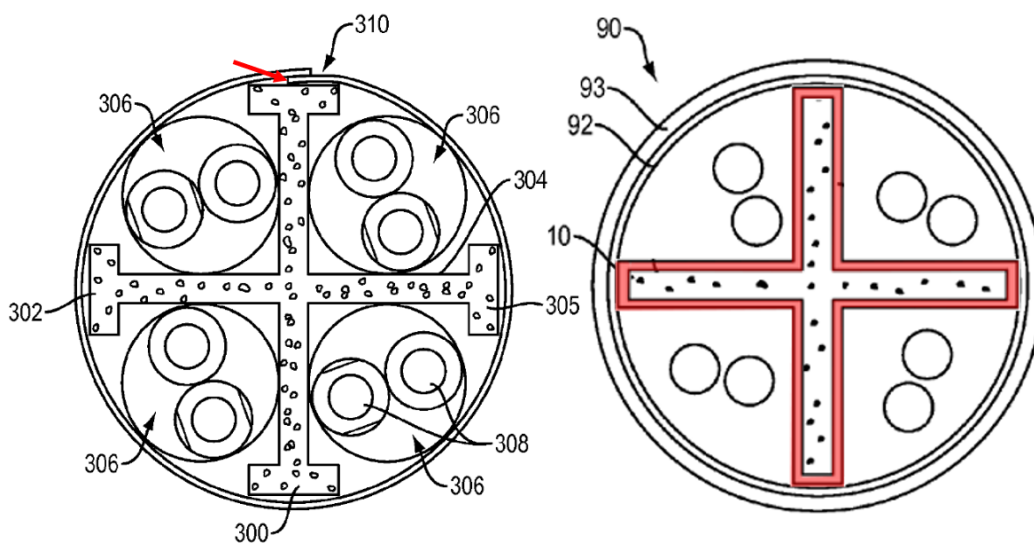


FIG. 10A

FIG. 6A

The edge of the tape is comparatively tiny compared to the conductive edges/surfaces of the separator. Considering that Glew expressly allows the much larger separator edges/surfaces to be exposed, a POSITA would not be “discouraged” from having Glew’s comparatively tiny tape edge on the left exposed.

375. Dr. Eldering’s evidence about “exposed” edges” is off point. Dr. Eldering’s second declaration lists three examples—Roberts, Kroushl, NEPTAPE®--that he says show it is desirable to avoid “an exposed conductive edge.” He then cites back to his analysis in his first declaration.

376. Roberts. Dr. Eldering’s first declaration cites Roberts’s discussion of foil 15 as supposedly evidence that an exposed conductive edge surface should be avoided. Roberts, however, specifically allows for the very feature Dr. Eldering (and the Patent Owner) say is undesirable: conductive material that extends to the lateral edge. Recall that Roberts allows four configurations for foil 15:

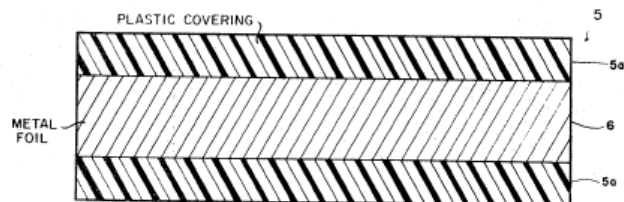


FIG. 5

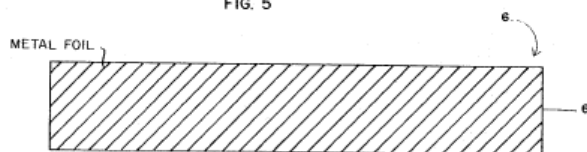


FIG. 6

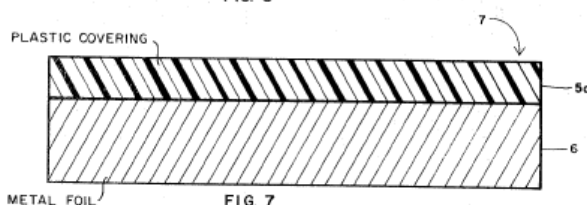


FIG. 7

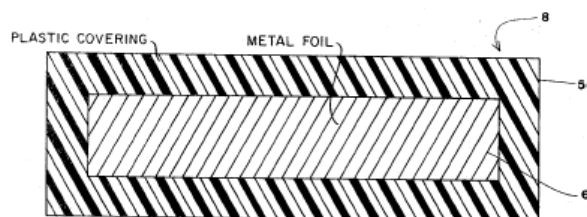


FIG. 8

INVENTORS
WALTER L. ROBERTS
FREDERIC N. WILKENLOH
Ray B. Morris
ATTORNEY

EX-1009. The first three configurations (Figure 5, 6, 7) show conductive material that extends to the lateral edge with exposed edges. Roberts explains: “Either one of the embodiments (5), (6), (7), and (8), shown in respective figures, are viable as a shield from both a structural and electrical standpoint.” EX1009 at 4:56-58.

377. Roberts further teaches that the comparatively small, exposed edges on the side surface are only a concern “when considering a cable of many miles.” EX-1009, 3:56-62. A POSITA would not understand Glew to require his cable to

extend “many miles” as installed. For example, a POSITA would understand Glew’s disclosure to cover Category 5e, 6, or 6A cables. Glew discusses such cables, for example, here is Table 1 from Glew:

TABLE 1		
Cable Type	Highest Frequency Defined (MHz)	Minimum ACRF (dB)
Category 5e	100	23.8
Category 6	250	19.8
Category 6A	500	13.8

See also EX-1009 ¶¶0004, ¶¶0006, ¶¶0039, ¶¶0122-0123. When installed, a POSITA would not expect Category 5e, 6, or 6A cables to extend for “many miles” because, for example, per the standards governing these cables, the cables have a 100-meter maximum channel length. The main concern is the major surfaces (top and bottom). EX1009 at 3:59-61. Dr. Eldering identifies nothing indicating Glew’s data cable is for “many miles.”

378. Furthermore, Roberts’s concern pointed to by Dr. Eldering is not even about having an exposed edge on an outer shield tape that surrounds the conductors and separator. Rather, Roberts’s concern is about having an exposed surface or edge on the internal separator (foil 15) that separates the twisted-pair conductors from each other. Glew, however, specifically discloses using a conductive separator with exposed conductive edges/surfaces as I discussed above. By disclosing and allowing a conductive separator with exposed conductive

edges/surfaces, Glew does not adopt Roberts's concern, which a POSITA would understand. And a POSITA would not be discouraged by Roberts's identified concern from modifying Glew's tape 310.

379. Kroushl. Kroushl discloses "a novel construction and manner for making" a "discontinuous shield tape" that "overcomes the drawbacks" of prior art discontinuous shield tapes and their associated methods of manufacture. EX2007 ¶[0011]. Glew, however, discloses a continuous shield tape. Kroushl's disclosures relating to discontinuous shield tape would not be relevant to a POSITA in view of Glew. Stated differently, a POSITA considering Glew's continuous shield tapes would not be motivated to look to, or be dissuaded by Kroushl's statements about, discontinuous shield tapes and methods of manufacturing discontinuous shield tape. Glew does not disclose a discontinuous shield tape. Further, Glew's context, as mentioned above, is a design that expressly allows for exposed conductive material adjacent the conductors. Kroushl does not address his disclosure to that context.

380. Also, the "drawbacks" pointed to by Kroushl concern prior art discontinuous shield tape made by "incising the aluminum side of a polyester film backed aluminum tape" and then stretching the tape to separate the aluminum segments and form a discontinuous shield tape. As Kroushl explains, the polyester film is thin and this manufacturing method has the drawbacks of producing tapes

with “uneven aluminum segment spacing separation and also making tape breakage common during the manufacturing process.” EX2007 ¶[0010]. To overcome the problems, Kroushl proposes using a polyester layer (or two such layers in a sandwich-style tape) that is wider than the aluminum layer, and then scoring or cutting the aluminum layer (or punching through both the aluminum and polyester layers), and then stretching the tape to have create the discontinuous tape shield. EX2007, ¶¶[023]-[0032], FIGS. 1-5. Kroushl discloses that having the polyester film be wider than the aluminum layer essentially guaranties that structural integrity of the tape will remain despite any incidental cutting/scoring of (or punching through) the polyester film that is coextensive with the aluminum layer. In other words, the part of the film that does not overlap with the aluminum layer is not scored/cut/punched through, and so when stretched the polyester layer(s) is/are still in one piece along the tape’s length. *Id.* The reason Kroushl discloses for having polyester layers wider than the aluminum layer is not relevant to a POSITA considering Glew. Glew does not disclose a discontinuous shield tape. Kroushl’s disclosures concerning discontinuous shield tape and manufacturing such tape is immaterial to Glew and modifying Glew because Glew does not disclose scoring, slitting, or punching separately through the conductive layer of the tape to make a discontinuous tape. A POSITA would not consider Kroushl, and the drawbacks to scoring, slitting or punching through the conductive

layer of a tape, relevant to Glew's continuous shield tape or modifying such tape to have the conductive layer extend to the lateral edges of the dielectric layers.

381. NEPTAPE. NEPTAPE (specifically, NEPTAPE F1141) does not suggest it has any relevance to Glew's context. Glew's context, as mentioned above, is a design that expressly allows for exposed conductive edges. None of the materials Dr. Eldering provided for NEPTAPE discussed such a design or suggests NEPTAPE is intended for such a design. None of the materials Dr. Eldering provided indicate the "Foil Free" feature is essential to NEPTAPE; for example, NEPTCO (the maker of NEPTAPE) sold other versions of NEPTAPE that did not include this feature and had exposed edges/surfaces. See EX-1050 (making no mention of the "Foil Free" feature, disclosing tapes having foil/polyester/foil layers and having polyester/foil/polyester layers). Further, Glew's context, as mentioned above, is a design that expressly allows for exposed conductive material adjacent the conductors. NEPTAPE (specifically, NEPTAPE F1141) does not address its disclosure to that context.

382. I also note that none of the material identified by Dr. Eldering (Roberts, Kroushl, NEPTAPE®, etc.) contradict the point that making tapes with non-exposed edges "would take much more time and be more complex to make." EX-1006 ¶138. For example, the material for NEPTAPE does not indicate its design is quicker or easier. Relatedly, none of the materials identified by Dr.

Eldering (Roberts, Kroushl, NEPTAPE®, etc.) contradict the point in my First Declaration that the customary way to make a tape is slitting that does allow for and results in exposed edges. EX-1006 ¶138. For example, U.S. Patent. No. 3,206,541 states: “It is usual to fabricate the inner jacket made of sandwich tape from wide sheets of material which are then slit to the desired width for economy of fabrication. In such construction, the edges of the foil are exposed.” EX-1049, 4:43-45.

VII. ROBERTS AS THE PRIMARY REFERENCE (GROUNDS 5-7)

A. Anticipation (Ground 5)

383. Dr. Eldering misunderstood my position on Roberts. Dr. Eldering objects that “a POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18.” Eldering 1st Decl. ¶81. Dr. Eldering further explained: “a POSITA would not replace armor shield 15 with metal foil shield 15 -- excuse me -- would not replace armor shield 18 with metal foil shield 15.” EX-1048 at 155:21-156:5.

384. My analysis in my First Declaration for anticipation based on Roberts does not require foil 15 be “used for” or “replace” shield 18. My anticipation analysis for the barrier tape element vis-à-vis Roberts was Paragraphs 203-208 in my First Declaration. None of those paragraphs refer to foil 15 being “used for” or to “replace” armor 18. Dr. Eldering added those phrases.

385. My analysis in my First Declaration for anticipation focused on an express teaching about the armor (18) itself. Specifically, Roberts teaches:

Longitudinally circumscribing the tape (17) is a corrugated metal armor tape shown at (18). This metal armor, having a thickness greater than a foil, (18), is a tapelike strip that has been longitudinally folded or wrapped around the plastic tape (17). This particular piece of armor is in a sense an electrical, as well as a mechanical, shield and it can have a plastic, such as polyethylene, firmly adhered to either one or more surfaces thereof.”

EX-1009 at 4:15-23. I cited and quoted from this teaching in Paragraph 207 of my First Declaration. Roberts’s express teaching that armor 18 itself can have plastic on “one or more” surfaces plainly means the armor itself can have two layers of plastic (one on the top and one on the bottom). Thus, Roberts expressly states that armor 18 itself can be a multi-layer tape with the metal (conductive material) contained between two dielectric layers (the plastic). Nothing about this requires the foil 15 be “used for” or “replace” the armor—the teaching is about this “particular piece of armor.”

386. Dr. Eldering also misunderstood why I cited in my First Declaration Figure 5 of Roberts. Figure 5 is part of a series of figures (i.e., Figures 5-8 which are all illustrated below) that shows plastic coating on or more surfaces of the foil (except for Figure 6 which shows no plastic coating at all). Figure 5 (the topmost figure in the group shown below) shows what it looks like to have plastic layers on the top and bottom surfaces of the metal (conductive) material:

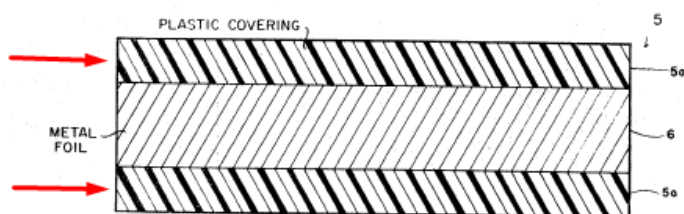


FIG. 5

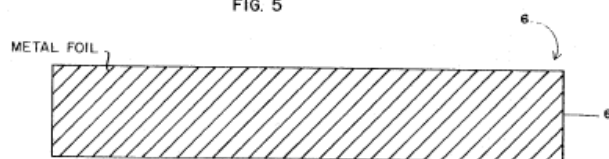


FIG. 6

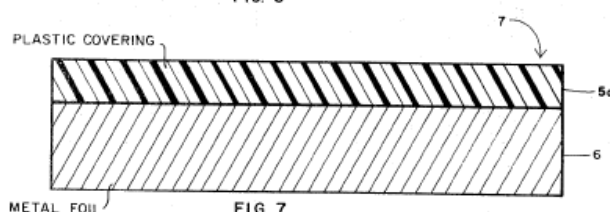


FIG. 7

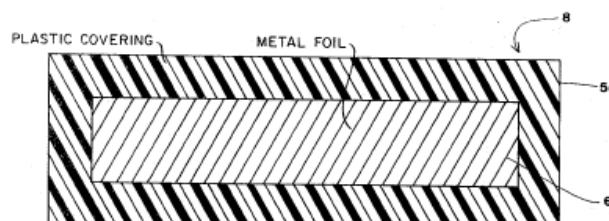


FIG. 8

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For B. Horton
ATTORNEY

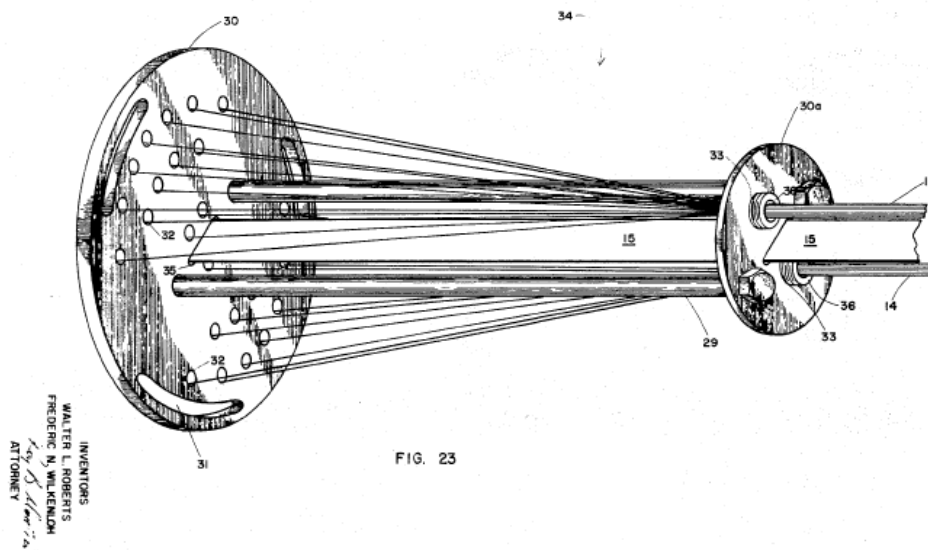
As noted above, Roberts teaches the metal armor 18 can have the same feature of plastic on “one or more surfaces” of the metal. Thus, when the metal armor 18 has plastic on two surfaces, my First Declaration pointed out that the armor 18 would have “metal and plastic layers having the same layers” as shown in Figure 5. Again, I said nothing about replacing the armor with the foil. Rather, my point in my First Declaration was that a POSITA reading Roberts would understand that Roberts teaches (based on the teaching cited and quoted above) the armor 18 itself

can have the same configuration illustrated in Figures 5-8—i.e., plastic on “one or more” surfaces—including the configuration shown in Figure 5 with plastic on two surfaces of the metal. Thus, when the metal armor 18 has plastic on two surfaces (top and bottom), my point in my First Declaration was that the configuration of the armor itself meets the claimed requirements. The armor itself plainly comprises continuous conductive material because the armor is metal armor, i.e., the whole armor is a piece of metal, and the metal of the armor is plainly between two dielectric layers because it now has plastic added to the top and bottom surfaces with the result being three aligned layers as shown in Figure 5 (plastic-metal-plastic), which meets the continuous, three-layer tape, and lateral edge limitations.

387. I note that Dr. Eldering did not identify any reason that Roberts’s disclosure that the armor 18 itself can have plastic on one “one or more surfaces” would look different from Figure 5 or that the plastic layers on the surfaces of the armor 18 would be different and not the same.

388. I understand that Patent Owner criticized Roberts’s disclosure for dependent claims 3 and 9. These claims require a filler with a “helical twist.” My First Declaration explained that Roberts’s foil 15 is an example of the claimed “filler.” EX-1006 ¶¶212, 214. My First Declaration also explained, with citation to Figure 23, that Roberts’s manufacturing process twists this filler into a “twisted

composite.” EX-1006 ¶¶212, 214. Here is that same Figure 23 cited in my opening declaration:



The foil 15 (filler) is the white elongated rectangular shape in the middle. Figure 23 shows that the foil 15 (filler) will be twisted about the central axis as the die plates (30, 30a) rotate together. The die plates are fixed together by cross member 29. I do not see any basis to criticize Roberts’s disclosure. As a matter of geometry, a rectangular shape becomes helical when it is twisted about its central axis. For example, I understand that Dr. Eldering was shown the following shape at his deposition:



I understand he agreed this shows the result of twisting the rectangular shape along its axis. EX-1048, 248:21-249:9, EX-1051. I agree with Dr. Eldering. Note that the result is plainly helical. The edges form a classic double helix similar to DNA. Likewise, as the die members shown in Figure 23 twist the rectangular filler 15, the filler will become helical.

B. Obviousness (Grounds 6-7)

389. In my First Declaration, I explained that Roberts also rendered claims 1-3, 9-11, 13, 16-18 of the '030 patent as obvious. Specifically, a POSITA would have found these claims obvious based on Roberts plus Jachimowicz-036 or the knowledge of a POSITA.

390. Roberts plus the knowledge of a POSITA. Dr. Eldering again misunderstood my position. My First Declaration pointed out Roberts itself shows a POSITA would know that the cross-section of a shield can have the claimed arrangement (continuous conductive material, between two dielectric layers, and where the conductive material extends to the lateral edge). Figure 5 of Roberts shows this for the foil 15:

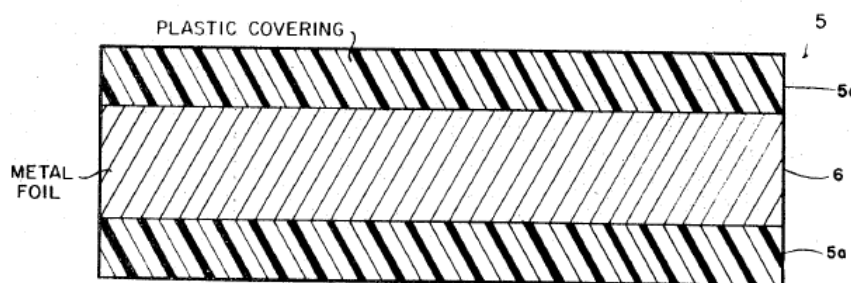


FIG. 5

35

Dr. Eldering's first declaration counters: "a POSITA would not understand that metal foil shield 15 could be used for metal armor shield 18." Eldering 1st Decl.

¶112. My argument, however, does not require wholesale using the foil to replace the armor. Rather, the point that I made in my First Declaration is simply that a POSITA would find it obvious that the armor 18 itself could have the "cross section" shown in Figure 5. EX-1006 ¶253 ("POSITA, thus, would be motivated by Roberts' own disclosure to utilize a conductive barrier tape that had the cross section of Roberts FIG. 5 as the metal tape shield 18"). This is consistent with Roberts's express teaching. Figure 5 shows the cross section when the foil has plastic adhered to both sides, and Roberts expressly teaches armor 18 can likewise have plastic adhered to "one or more" sides which includes plastic on both sides as shown in Figure 5. EX-1009 at 4:20-23. Dr. Eldering keeps ignoring this express teaching regarding armor 18.

391. Roberts plus Jachimowicz-036. Dr. Eldering's analysis regarding my opinions about the combination of Roberts plus Jachimowicz-036 has several significant errors.

392. Dr. Eldering's second declaration argues Roberts's armor 18 and Jachimowicz-036's shield 14 are incompatible because of their allegedly different thicknesses. Dr. Eldering focuses on the fact that Roberts's says the armor 18 has a thickness "greater than" Roberts's "thin" foil 15, and Dr. Eldering says

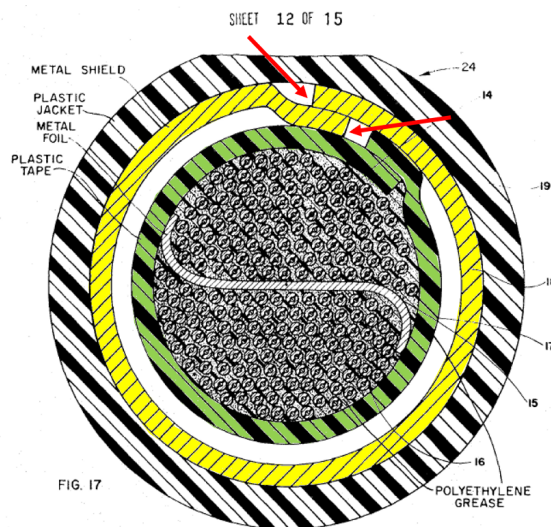
Jachimowicz-036's shield is also "thin" like Roberts's foil. Dr. Eldering took the term "thin" in Jachimowicz-036 out of context. Jachimowicz-036 says that shield 14 is "relatively thin" and explains this means the metal in the surrounding shield is "5-10 mils," for example, "8 mil thick." EX-1013 1:45-46, 2:17-18. This is a standard thickness for a telephone cable shield like Roberts. This is completely compatible with Roberts. Roberts says that armor 18 has a thickness "greater than" the foil where the thickness of the foil is "between 1 and 5 mil." EX-1009 at 4:16-17, 4:58-59. Thus, Roberts's actual requirement is that armor 18 has a thickness greater than 5 mils. The thickness of Jachimowicz-036's shield 14 is greater than 5 mils (e.g., 8 mils). Dr. Eldering merely took "thin" out of context and ignored the specific teachings in the two references.

393. Dr. Eldering First Declaration has two more significant errors.

394. First, Dr. Eldering incorrectly asserted that I never explained how the combination (Roberts with Jachimowicz-036) would work, and specifically whether the shield 14 in Jachimowicz-036 would "replace" the armor 18 in Roberts. Here are his words: "Cornelison never explained why or how shield 14 disclosed in Jachimowicz-036 would be used 'on Roberts' cable.' Cornelison ¶254. For example, Cornelison did not even try to explain how the shield 14 disclosed in Jachimowicz-036 would be used in Roberts' cable (i.e., whether it would replace the metal armor shield 18 in Roberts or be used in addition to the metal armor

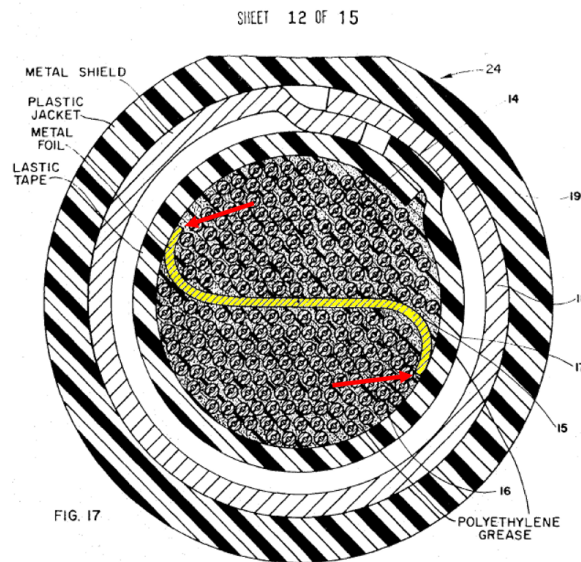
shield 18).” Eldering 1st Decl. ¶114. This is incorrect. My first Declaration explicitly stated: “it is my opinion that it would have been obvious to a POSITA at the time of the invention to replace Roberts’ metal tape shield 18 with one as recited in view of Jachimowicz-036.” EX-1006 ¶249.

395. Second, Dr. Eldering says Roberts teaches away from using a shield “where the edge of the metal foil is exposed as it would be if it extended to the lateral edges.” Eldering 1st Decl. ¶89. None of the armor’s edges in Roberts are “exposed” to the electrical conductors inside the center of the cable. In the embodiment in Figure 17 of Roberts, plastic tape 17 (green) blocks the entire armor 18 (yellow) including its edges (red arrows) from the electrical conductors in the center of the cable (the many little circles):



Thus, in my proposed combination where a POSITA could replace Roberts’s armor 18 with Jachimowicz-036’s shield 14, Jachimowicz-036’s shield 14 (which

shows the conductive material extending to the lateral edges of the dielectric layers) would not be exposed to any of the conductors in Roberts. Plastic tape 17 would block the entire shield 14 including its edge. Roberts only describes exposed edges as problematic for the foil 15 because the foil 15 is inside the center with its edges (red arrows) next to the conductors:



VIII. CONCLUSION

396. In signing this declaration, I understand that the declaration will be filed as evidence in the 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 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.

397. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and 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.

Executed on: June 20, 2024

By: Kenneth Cornelison
Kenneth Cornelison