

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BERK-TEK LLC
Petitioner

v.

BELDEN TECHNOLOGIES INC.
Patent Owner

Case IPR2013-00058
Patent 7,977,575

Before JAMESON LEE, JOSIAH C. COCKS, and
PHILLIP J. KAUFFMAN, *Administrative Patent Judges*.

KAUFFMAN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

A. *Introduction*

On November 19, 2012, Petitioner, Berk-Tek, LLC, filed a petition for *inter partes* review of claims 1-34 of U.S. Patent No. 7,977,575 B2 (“the ’575 Patent”).¹ Paper 1. Petitioner filed a revised petition on November 28, 2012.² Paper 5 (“Pet.”). On May 2, 2013, the Board instituted a trial for each of claims 1-34, on one or more grounds of unpatentability. Paper 13 (“Dec.”).

After institution of trial, Patent Owner filed a patent owner response (Paper 22, “PO Resp.”), and did not file a motion to amend. Petitioner subsequently filed a reply. Paper 23 (“Pet. Reply”).

A consolidated oral hearing resulting in a single transcript was held on January 8, 2014, for this case and for *inter partes* review 2013-00069, a related case involving the same parties.³

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

Claims 1-34 of the ’575 Patent are *unpatentable*.

¹ In the original Petition, Petitioner is identified as “Nexans, Inc.” Paper 1. On April 18, 2013, Nexans informed the Board that Nexans’s successor in interest is “Berk-Tek, LLC.” Paper 12.

² All further references to the Petition are to the revised Petition unless otherwise stated.

³ A transcript of the final hearing is included in the record as Paper 28 (“Tr.”).

B. Standard for Decision with Respect to Patentability

When, as here, an *inter partes* review is instituted and not dismissed, the Board shall issue a final written decision with respect to the patentability of any patent claim challenged by Petitioner. 35 U.S.C. § 318(a). The standard for determining patentability is set forth in 35 U.S.C. § 316(e), which provides as follows:

(e) Evidentiary standards - In an *inter partes* review instituted under this chapter, Petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.

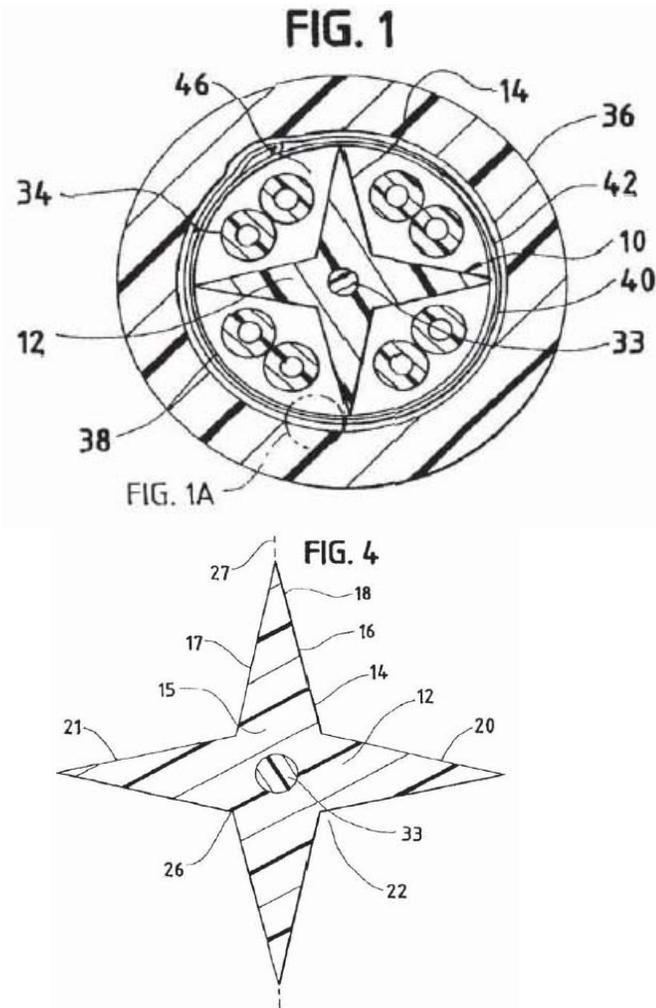
C. The '575 Patent

The '575 Patent discloses a high performance data cable. Ex. 1001, 1:26. As background, the '575 Patent discloses that many data communications systems utilize high performance data cables having at least four twisted pairs (a pair of conductors twisted about each other). *Id.* at 1:32-36. These cables must meet exacting specifications with regard to data speed and electrical characteristics. *Id.* at 1:39-41.

The cable of the '575 Patent includes an interior support⁴ having grooves that accommodate twisted pair conductors allowing for easy spacing of the twisted pairs that improves near-end cross-talk (NEXT) and lessens the need for complex and hard to control lay procedures and individual shielding. *Id.* at 1:43; 2:1-9.

⁴ An “interior support” is also referred to as a “star separator” or a “separator.” *See, e.g.,* Ex. 1001, 1: 27-28; 4:9-10.

Figures 1 and 4 of the '575 Patent are reproduced below:



Figures 1 and 4 are vertical cross-sectional views of the cable and the interior support, respectively.

In this embodiment, interior support 10 includes central region 12 with four prongs or splines 14 that extend both along the longitudinal length of interior support 10 and radially outward from the central region of interior support 10. *Id.* at 4:21-32; figs. 1, 4. Insulated twisted pairs of conductors 34 are disposed within grooves 22 defined by each pair of adjacent prongs

14, and run the longitudinal length of interior support 10. *Id.* at 4:51; 5:19-21, 29-32; fig. 1.

D. Illustrative Claim

Of the challenged claims, claims 1, 17, 24, and 29 are independent.

Claim 1 is illustrative, and is reproduced below:

1. An unshielded twisted pair data communications cable comprising:

 a plurality of twisted pair conductors configured to carry data communications signals;

 a non-conductive interior support consisting of at least one non-conductive material and having a surface that defines a plurality of channels in the data communications cable within which the plurality of twisted pair conductors are individually disposed; and

 an outer jacket longitudinally enclosing the plurality of twisted pair conductors and the non-conductive interior support to form the data communications cable, the outer jacket being formed of a non-conductive material;

 wherein the outer jacket in combination with the nonconductive interior support maintains the plurality of twisted pair conductors within the channels defined by the surface of the non-conductive interior support; and

 wherein the unshielded data cable does not include a shield between the outer jacket and the twisted pair conductors and the non-conductive interior support.

E. Prior Art References Supporting Alleged Unpatentability of Claims 1-34⁵

Cutler '064	US 3,209,064	Sept. 28, 1965	Ex. 1007
Burk '710	US 3,888,710	June 10, 1975	Ex. 1016
Cheng '467	US 4,935,467	June 19, 1990	Ex. 1012
McNeill '813	US 5,399,813	Mar. 21, 1995	Ex. 1014
Tessier '046	CA 2,058,046	Aug. 22, 1992	Ex. 1002
JP '507	Sh061(1986)-13507	Jan. 21, 1986	Ex. 1006
JP '470	Sh043(1968)-15470	June 28, 1968	Ex. 1003

F. Pending Grounds of Unpatentability⁶

Reference(s)	Basis	Claims
Tessier '046	§ 102	1-9, 12-15, 17, 20, 21, 23, and 24
Tessier '046 and Cheng '467	§ 103	9-11, 18, 19, 23, 25, and 28
Tessier '046 and Burk '710	§ 103	16
Tessier '046 and Cutler '064	§ 103	22 and 27
Tessier '046 and JP '507	§ 103	26
Tessier '046 and McNeill '813	§ 103	29, 31, and 33
Tessier '046, McNeill '813, and Cheng '467	§ 103	30

⁵ Exhibits 1006 and 1003 contain both the Japanese and English version of the reference.

⁶ See Dec. at 32-33.

Reference(s)	Basis	Claims
Tessier '046, McNeill '813, and Cutler '064	§ 103	32 and 34
JP '470	§ 102	29, 31, and 33

II. CLAIM INTERPRETATION

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Claim terms are also given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998).

The challenge is to interpret claims in view of the specification without unnecessarily importing limitations from the specification into the claims. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003). If a feature is not necessary to interpret what the inventor means by a claim term, it is “extraneous” and should not be read into the claim. *Renishaw PLC*, 158 F.3d at 1249; *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). The construction that stays true to the claim language and most naturally aligns

Case IPR2013-00058
Patent 7,977,575

with the inventor's description is likely the correct interpretation. *See Renishaw PLC*, 158 F.3d at 1250.

A. *Channels*

1. *Board Interpretation*

We begin our claim construction analysis with the claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” (citations and quotations omitted)).

Independent claim 1 is directed to a communications cable that includes: a plurality of twisted pair conductors, an interior support, and an outer jacket. The surface of the interior support defines a plurality of channels within which the plurality of twisted pair conductors are individually disposed.

The Specification of the '575 Patent does not provide a lexicographical definition of “channels.” Indeed, the term “channels” is used in the claims, but is not used in the remainder of the Specification. An ordinary meaning of “channel” is “a long gutter, groove, or furrow.” Ex. 2001; Ex. 2002. Nothing in the Specification of the '575 Patent is inconsistent with the ordinary meaning that a channel is a “long gutter, groove, or furrow.”

The '575 Patent is a continuation of application No. 11/877,343, now U.S. Pat. No. 7,663,061 (“the '061 Patent”), which is a continuation of

Case IPR2013-00058
Patent 7,977,575

application No. 09/765,914, now U.S. Pat. No. 7,339,116 (“the ’116 Patent”), which is a continuation-in-part of application No. 09/074,272, now U.S. Pat. No. 6,222,130 (“the ’130 Patent”), which is a continuation-in-part of application No. 08/629,509, now U.S. Pat. No. 5,789,711 (the ’711 Patent”). Ex. 1001, 1:7-20.

Because the ’575 Patent derives from the same parent application and shares common terms with the ’116 Patent and the ’061 Patent, we construe claim terms in the ’575 Patent consistent with their use in the ’116 Patent and the ’061 Patent.⁷ See *NTP Inc., v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005) (When construing claims in patents that derive from the same parent application and share common terms, “we must interpret the claims consistently across all asserted patents.”). Further, the ’575 Patent incorporates the ’116 Patent and the ’061 Patent in their entirety. Ex. 1001, 1:20-22.

In the ’061 Patent, independent claims 1 and 7 are each directed to a communications cable that includes a separator having a plurality of arms where each pair of adjacent arms defines a channel, and at least one twisted pair of the plurality of twisted pairs is located in the channel. Ex. 3001, 6:42-59; 7:6-26. Claim 12 contains a similar use of the term channel. *Id.* at 7:35-8:3. The term “channel” is not otherwise used in the ’061 Patent.

⁷ The term “channels” is not used in the ’711 Patent or the ’130 Patent.

In the '116 Patent, independent claim 1 is directed to a data cable that includes an interior support having a plurality of projections where adjacent projections define an “open space,” and the plurality of twisted pairs are disposed in each open space. Ex. 3002, 6:45-61. Claim 3 of the '116 Patent depends from independent claim 1 and requires that the open space be one selected from “a group consisting of a channel, a groove, a duct, and a passage.” *Id.* at 6:65-67. Independent claim 4 and its dependent claim 6 utilize the claim terms “open space” and “channel” in the same manner. *Id.* at 7:1-15; 8:1-17. The term “channel” is not otherwise used in the '116 Patent.

Independent claims 17, 24, and 29 of the '575 Patent recite uses of the term “channels” similar to that of independent claim 1.

Therefore, in the specific context of these claims, consistent with the '061, '116, and '575 Patents, a channel, as a long gutter, groove, or furrow, is a type of open space defined by the interior support within which at least one of the plurality of twisted pairs is located.

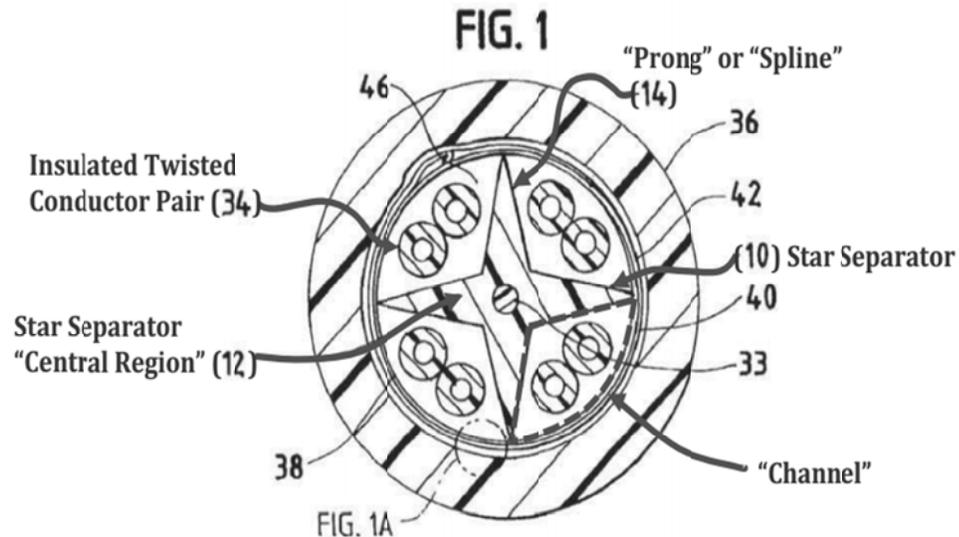
Petitioner’s assertion that “channels” are areas in the cable defined by the separator that hold and space the twisted pairs is consistent with our interpretation. Pet. Reply 4-5.

2. *Patent Owner Argument*

Patent Owner argues that “channels” as claimed are substantially enclosed passages formed in the cable by the interior support and the jacket. Ex. 2004, 5; *see also* PO Resp. 10-12.

An annotated version of Figure 1 of the '575 Patent from Patent Owner's Response is reproduced below:

The '575 Patent



This annotated version of Figure 1 of the '575 Patent is a cross-sectional view of a cable.

Patent Owner annotated Figure 1 with a dotted line identified as a "channel." Patent Owner makes several assertions in support of its claim interpretation.

a) Ordinary meaning

Patent Owner proffers that ordinarily "channel" is understood to mean either "a usually tubular enclosed passage: CONDUIT," or "an especially tubular enclosed passage: CONDUIT, PIPE, DUCT <the poison ~ in a snake's fangs." PO Resp. 10-11. Based upon these ordinary meanings, Patent Owner argues that a "channel" as claimed is a substantially enclosed

passage formed in the cable by the interior support and the jacket. Ex. 2004, 5; *see also* PO Resp. 10-12.

This contention contradicts the plain language of each of the independent claims. As explained above, each of the independent claims requires the interior support to define the channels, not the interior support in combination with the jacket. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (the claims define the invention).

Patent Owner's claim construction also deviates without justification from the ordinary meaning of "channel" proffered. The ordinary meaning of "channel" proffered is a tubular enclosed passage, yet Patent Owner asks that "channel" be interpreted as a *substantially* enclosed passage. As pointed out by Petitioner, the '575 Patent does not contain the word "substantially," nor does the Specification otherwise support such a meaning. *See* PO Resp. 5. Further, as detailed below, Patent Owner does not explain cogently how such a deviation from the ordinary meaning of the term "channel" is warranted by the Specification. *See e.g., In re Translogic Tech., Inc.*, 504 F.3d at 1257 (absent a lexicographical definition, claim terms should be given their ordinary meaning as understood by a person of ordinary skill in the art).

b) Specification

Patent Owner's claim interpretation relies on two portions of the Specification for support. First, Patent Owner observes that the Specification indicates that each pair of adjacent prongs 14 of interior support 10 defines a groove 22. PO Resp. 11. Indeed, the '575 Patent

contains such disclosure. *See* Ex. 1001, 4:51; fig. 2. This disclosure does not describe the groove as a substantially enclosed passage formed by the interior support and the jacket. Further, Patent Owner fails to explain persuasively how this disclosure regarding a groove relates to the scope of the term “channel.”

Second, Patent Owner asserts that in the '575 Patent the term “channel” is “reserved for describing the substantially enclosed space that is formed when the jacket is closed about the prongs to enclose the twisted pairs.” PO Resp. 12. This assertion is incorrect in terms of the structure that defines the channel and in terms of the extent of the channel. Regarding structure, the '575 Patent does not describe a “channel” as a space defined by the interior support in combination with the jacket. Rather, as detailed above, the '575 Patent consistently indicates that the interior support defines the channels. Regarding the extent of the channel, the '575 Patent does not describe “channels” as substantially enclosed passages.

c) Declaration

Patent Owner’s claim interpretation also relies on the Declaration of Mr. Gareis, a co-inventor of the '575 Patent. The Declaration states that a person of ordinary skill in the art of designing twisted pair cables would have understood the term “channel” to mean a substantially enclosed passage in the cable. Ex. 2003 ¶ 11. Specifically, the Declaration states:

[a] person of ordinary skill in the art of designing twisted pair cables would have understood the term ‘channel,’ as it is used in the '061 Patent to mean a region that is at least substantially separated by the pair separator/interior support, such that a

substantially enclosed passage is formed in [the] cable.⁸

Ex. 2003 ¶ 11.

For the reasons that follow, this contention is unpersuasive. First, we note that the statement does not go so far as to assert that “channel” is a term of art; rather, the assertion relates to the meaning of “channel” in light of the Specification. Second, as detailed above, the intrinsic evidence as to the meaning of the claim term “channel” is unambiguous so that we need not resort to expert testimony. *See* Ex. 2003 ¶ 11; *Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 705 (Fed. Cir. 1997); *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1126 (Fed. Cir. 1996). Third, the statement is conclusory in that it is not supported by a citation to the Specification or an ordinary meaning. *See* 37 C.F.R. § 42.65(a); *Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997).

Having considered the declaration, we find it does not support the claim interpretation proffered by Patent Owner.

d) In the Cable

At the hearing, Patent Owner elaborated that a “channel” as claimed is substantially enclosed because the claim recites that the “channels” are “in the data communications cable.” Tr. at 31.

⁸ This declaration refers to the '061 Patent instead of the '575 Patent because it was created for re-examination of U.S. 7,663,061, one of the related patents (now the subject of IPR2013-00069).

To begin, we note that only claim 1 contains this language, and for that reason this line of argument is not applicable to independent claims 17, 24, and 29. *See* Ex 1001 at 6:55-58.

Patent Owner asks that we read the recitation that the channels are “in the data communications cable” to mean that the channel is substantially enclosed and formed by the interior support in combination with the jacket. This assertion contradicts the claim language that recites that the interior support defines the channels. Additionally, as detailed above, claim 1 does not require that the channel is substantially enclosed. The recitation that the channels are “in the data communications cable” simply indicates where the channels formed by the interior separator are located (i.e., in the data cable).

e) Conclusion

For these reasons, we decline to accept Patent Owner’s claim construction.

B. Twisted together

1. Board Interpretation

a) Claim Language

Independent claims 12, 24, and 29 are each apparatus claims directed to a communications cable.

The last clause of independent claim 24 recites, “wherein the four twisted pair conductors and the non-conductive interior support are twisted together about a common axis to close the communications cable.” Ex. 1001, 9:5-7. Independent claim 29 and claim 12 contain similar language.

Ex. 1001, 7:50-53; 9:23-10:11. Claims 13, 25-28, and 30-34 contain this limitation by virtue of their dependence from claims 12, 24, and 29, respectively. Ex. 1001, 7:54-57; 9:8-22; 10:12-28.

While the clause at issue begins with the term “wherein,” it does not merely state the result of limitations elsewhere recited in the claim. Only this clause recites that the twisted pair conductors and the interior support are twisted together about a common axis. Therefore, this clause adds to the patentability or substance of the claim. *Cf. Texas Instruments, Inc. v. U.S. Int’l Trade Comm’n*, 988 F2d 1165, 1172 (Fed. Cir. 1993).

The claims do not recite that the claimed structure is the structure produced by twisting the twisted pairs along with the interior support, nor do the claims recite that the cable is “cabled.”

b) Specification

The Specification of the ’575 Patent does not include a lexicographical definition of the claim phrase “twisted together” or “to close.” Nor does the ’575 Patent explicitly describe the process of closing a cable or otherwise describe that the twisted pair conductors are twisted along with the interior support (meaning simultaneous twisting of the conductors with the support).

The ’575 Patent indicates that the interior support may be “cabled” (as opposed to “closed”) with a helixed or S-Z configuration to define helically twisted grooves that accommodate the twisted pairs. Ex. 1001, 5:27-32. Thus, it is the interior support alone that is “cabled” to define grooves that accommodate the twisted pairs, and being “cabled” is not described as

twisting the twisted pairs along with the separator. More importantly, the claims do not require that the interior support is “cabled”; rather, as noted above, the claims require that the twisted pairs and the interior support are helically twisted together along the length of the cable. The record before us does not contain any persuasive evidence regarding the relationship, if any, between cabling and closing a cable.

c) Interpretation

The structure required by the claims is the twisted pairs and the interior support twisted together about a common axis along the length of the cable. The claims are not limited to a structure produced by a certain method of manufacture.

2. Patent Owner Argument

Patent Owner argues that “twisted together about a common axis to close the cable” requires the interior support to be “twisted along with” the twisted pair conductors about a common axis. PO Resp. 14-16. To illustrate this claim interpretation, Patent Owner argues that Tessier ’046’s interior support (either core member 22 or body 32) is formed separately as a helix rather than being twisted together with the twisted pair conductors. *Id.*

To the extent that Patent Owner’s argument can be seen as a contention that the step of twisting the twisted pairs along with the interior support is claimed, such a contention is unpersuasive because the claims at issue are apparatus claims. *See* Pet. Reply 13 (noting that the claims at issue are product claims and do not cover a process).

Patent Owner's argument also can be seen as an assertion that twisting the twisted pairs along with the interior support, as opposed to separately twisting the components and intertwining them, produces a different structure. We have no evidence before us that the structures resulting from these two processes differ. However, we need not make such a determination because nothing in the claim language or the Specification limits the claims to the structure produced by a specified process. As explained above, the claims require that the twisted pairs and the interior support are helically twisted together along the length of the cable, and the claims are not limited to a structure produced by a certain method of manufacture.

3. Conclusion

Contrary to Patent Owner's assertions, the structure required by the claims is the twisted pairs and the interior support twisted together about a common axis along the length of the cable, and the claims are not limited to a structure produced by a certain method of manufacture.

III. PATENTABILITY

A. Alleged Anticipation by Tessier '046

As noted in section I.F. above, Petitioner contends that claims 1-9, 12-15, 17, 20, 21, 23, and 24 are unpatentable as anticipated by Tessier '046. Petitioner provides detailed explanations as to how each claim element, arranged as is recited in these claims, is disclosed by Tessier '046. Pet. 15-16, 30-33; Pet. Reply 1-8, 10-15. Upon review of the Petition, Patent

Owner's response, and Petitioner's reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 1-9, 12-15, 17, 20, 21, 23, and 24 are unpatentable under 35 U.S.C. § 102 as anticipated by Tessier '046. Our analysis will focus on the deficiencies alleged by Patent Owner.

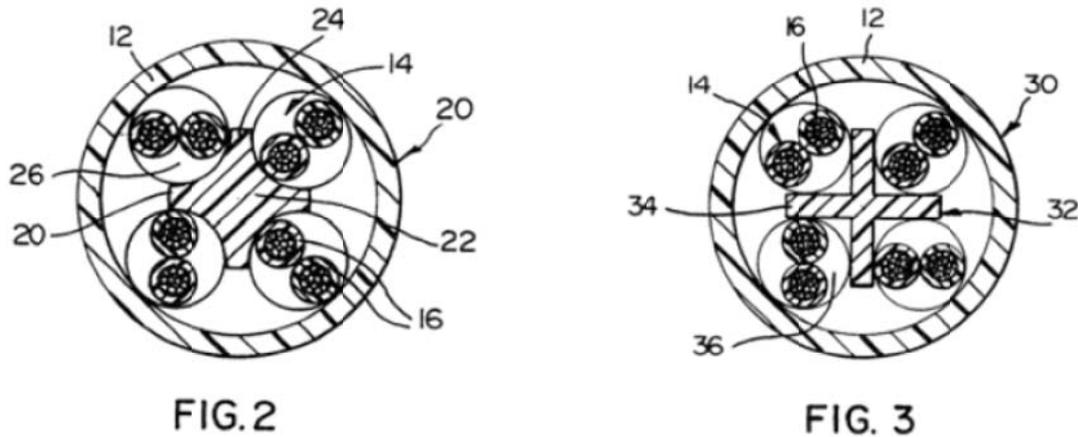
To anticipate a patent claim under 35 U.S.C. § 102, "a single prior art reference must expressly or inherently disclose each claim limitation."

Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1334 (Fed. Cir. 2008). "It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim." *In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986).

1. Tessier '046

Tessier '046 discloses an electrical telecommunications cable. Ex. 1002, 1:2-3. The cable comprises: a plurality of twisted pairs of individually insulated conductors, a spacer means, and an outer jacket. Ex. 1002, 2:1-5; 2:11-20; 3:2-6. The spacer means extends along the axis of the cable and has radially outwardly extending projections that are spaced apart circumferentially and define recess regions in which the conductors are disposed. *Id.*

Figures 2 and 3 of Tessier '046 are reproduced below:



Figures 2 and 3 illustrate the second and third embodiments of Tessier '046, respectively.

In the second embodiment, cable 20 is comprised of jacket 12 surrounding four pairs 14 of insulated conductors 16 and central core member 20 (both the cable and the central core member are labeled “20” in figure 2). *Id.* at 3:36-4:4. The central core member “extends axially along the cable and is formed from a tensile dielectric material.” *Id.* at 4:4-5. The central core member includes central mass 22 and four projections 24, with concave sides, that are equally angularly placed around the axis of the central core member and define recesses 26 between them; an individual twisted pair of the conductors lies in each of the four recesses between the projections. *Id.* at 4:5-14. “The projections 24 and thus the recesses 26 extend in helical fashion along the core member 20 to allow the pairs 14 to lie within the recesses in stranded fashion.” *Id.* at 4:14-17.

The third embodiment is similar to the second embodiment except that in the third embodiment, central core member 20 of the second embodiment is replaced by body 32 formed by four helically extending spokes 34 that lie at right angles to each other in cross-section-shaped (“cruciform fashion”). *Id.* at 4:22-35. Spokes 34 of body 32 form recess regions 36 that accommodate pairs 14 of conductors 16. *Id.* at 4:22-37.

In both the second and third embodiments, jacket 12 holds pairs 14 of conductors 16 in their respective recesses (26, 36). *Id.* at 2:4-5; 4:14-17, 35-37; figs. 2, 3.

2. Claims 1, 17, and 24

Patent Owner argues that Tessier '046 discloses one large cylindrical channel with core member 20 being located in the center. PO Resp. 12-13 (modifying Tessier '046's Figures 2 and 3 by removing pairs 14 of insulated conductors 16⁹). Patent Owner does not challenge other aspects of this ground of unpatentability, nor present argument for the dependent claims.¹⁰

This contention is premised on the interpretation that a “channel” as claimed is a substantially enclosed passage formed by the interior support in combination with the jacket. As explained above, such interpretation is

⁹ The Patent Owner refers to pairs 14 of insulated conductors 16 as “cables.” PO Resp. 12; *see also* Ex. 1002, 3:37-4:1; figs. 2, 3.

¹⁰ The Gareis Declaration contains information regarding “surprisingly good performance” regarding a cable that includes a pair separator with arms that define a channel. Ex 2003 ¶¶ 9-10. Perhaps this disclosure is related to the proceeding the Declaration was originally prepared for. Because the Patent Owner did not present argument related to this data, it has not been further considered.

incorrect. Consequently, Patent Owner's argument is unpersuasive because it is not commensurate in scope with the claims at issue. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“[A]ppellant’s arguments fail from the outset because . . . they are not based on limitations appearing in the claims.”).

Tessier '046 discloses a second (cable 20) and third embodiment (cable 30), each including an interior support (central mass 22, body 32) having a surface (radially outwardly extending projections 24 of central mass 22, or spokes 34 of body 32) that define channels (recess regions 26, 34). Ex. 1002, 2:36-3:35; figs. 2, 3. These channels (recess regions 26, 34) permit twisted pairs 14 of conductors 16 to be individually disposed within them. Further, these channels (recess regions 26, 34), in combination with jacket 12, maintain twisted pairs 14 of conductors 16 in their respective channels. Pet. 31; Pet. Reply 6; Tessier '046 at 2:4-5; 4:14-17, 35-37; figs. 2, 3.

For the reasons stated above, we are not persuaded by Patent Owner's arguments as to independent claims 1, 17, and 24. Patent Owner does not address specifically the dependent claims. *See* PO Resp. 6-16. Petitioner provides sufficient explanations and evidence to show that Tessier '046 discloses the additional recited limitations in those claims. *See* Pet. 48-77.

Upon review of the Petition, Patent Owner's response and Petitioner's reply, we determine that Petitioner has shown by a preponderance of the evidence that Tessier '046 anticipates independent claims 1 and 17, and their respective dependent claims 2-9, 14, 15, and 23.

3. *Claims 12, 13, 20, 21, and 24*

Patent Owner argues that the anticipation rejection of claims 12, 13, 20, 21, and 24 cannot be maintained because the Petition “entirely fails to address” the claim limitation that the four twisted pair conductors and the non-conductive interior support are twisted together about a common axis to close the data communications cable. PO Reply 14. To the contrary, the Petition addresses this limitation. *See, e.g.*, Pet. 15 (“the pair separator and twisted pairs are helically twisted along the length of the cable”), 31-32. Petitioner’s Reply also addresses this limitation. Pet. Reply 12-15.

Patent Owner also argues that Tessier ’046 cannot anticipate these claims because Tessier ’046’s interior support is manufactured by helically extruding it before it is wrapped in the jacket 12. PO Resp. 14-16.

This argument is premised on the interpretation that the claims are limited to a structure produced by twisting the twisted pairs along with the separator and do not cover a structure produced by separately twisting those components and then intertwining them. As explained above, the claims at issue are not limited in this manner. Thus, Patent Owner’s argument is unpersuasive because it is not commensurate in scope with the claims at issue. *See In re Self*, 671 F.2d at 1348.

Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 12, 13, 20, 21, and 24 are unpatentable as anticipated by Tessier.

B. Alleged Obviousness over Tessier '046 and Cheng '467

As noted in section I.F. above, Petitioner contends that claims 9-11, 18, 19, 23, 25, and 28 are unpatentable as obvious over Tessier '046 and Cheng '467. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that the combination of Tessier '046 and Cheng '467 would have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 25-26, 37-38; Pet. Reply 1-8, 10-15.

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

The level of ordinary skill in the art is reflected by the prior art of record. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

1. Cheng '467

Cheng '467 discloses polymeric compositions for electrical conductor insulation, cable jackets, and electrical devices. Ex. 1012, 1:10-14. Materials, including co-polymers, may be extruded into shaped articles and are suitable for use in a communications cable. Pet. 25-26, 37; Ex. 1012, 4:36-44. Certain thermoplastic copolymers can be used as cable insulation. Pet. 25-26, 37; Ex. 1012, 2:11-29; 2:45-6:27. The types of copolymers used in Cheng '467's invention have associated benefits desirable in the art of telecommunications cables, such as "improved flexibility" and "high tensile strength, solvent resistance and other physical properties." Ex. 1012, 9:34-39.

2. Analysis

We have reviewed the parties' arguments and supporting evidence. Petitioner explains and offers supporting evidence as to how the subject matter of the challenged claims would have been obvious over Tessier '046 and Cheng '467. Our analysis will focus on the deficiencies alleged by Patent Owner.

Regarding all of the claims subject to this ground, Patent Owner repeats the argument that Tessier '046 does not disclose "channels" as claimed. PO Resp. 16. This limitation is present in claims 9, 10, 11, 18, 19, 23, 25, and 28 by virtue of their dependence from independent claims 1, 17, and 24. Consequently, this argument is unpersuasive for the reasons given in the analysis of the respective independent claims in the first ground of unpatentability above.

Additionally, with regard to claims 25 and 28, Patent Owner repeats the argument that Tessier '046 does not disclose conductors and a support twisted together as claimed.¹¹ PO Resp. 16. Claims 25 and 28 depend from independent claim 24, and, therefore, the analysis of claim 24 in the first ground of unpatentability above is equally applicable here.

Upon review of the Petition, Patent Owner's response, and Petitioner's reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 9-11, 18, 19, 23, 25, and 28 are unpatentable under 35 U.S.C. § 103(a) over Tessier '046 and Cheng '467.

C. Alleged Obviousness over Tessier '046 and Burk '710

As noted in section I.F. above, Petitioner contends that claim 16 is unpatentable as obvious over Tessier '046 and Burk '710. Petitioner explains and offers supporting evidence as to how the subject matter of the challenged claims would have been obvious over Tessier '046 and Burk '710. Pet. 15-16, 28-29, 36, 38; Pet. Reply 1-8, 10-15.

1. Burk '710

Burk '710 discloses filler compositions for electrical cables, particularly for cold filling of telecommunications cables. Ex. 1016, Abstract; 1:5-15; 4:51-54; Pet. 28-29, 38.

¹¹ Because claim 27 is not subject to this ground of unpatentability, we presume Patent Owner intended to make reference to claim 28 rather than claim 27.

2. *Analysis*

Having reviewed the parties' arguments and supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence how the subject matter of the challenged claims would have been obvious over Tessier '046 and Burk '710. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner repeats the argument that Tessier '046 does not disclose "channels" as claimed. PO Resp. 17. This limitation is present in claim 16 by virtue of its dependence from independent claim 1. This argument is unpersuasive for the reasons given in the analysis of independent claim 1 in the first ground of unpatentability above.

Upon review of the Petition, Patent Owner's response and Petitioner's reply, we determine that Petitioner has shown by a preponderance of the evidence that claim 16 is unpatentable under 35 U.S.C. § 103(a) over Tessier '046 and Burk '710.

D. Alleged Obviousness over Tessier '046 and Cutler '064

As noted in section I.F. above, Petitioner contends that claims 22 and 27 are unpatentable as obvious over Tessier '046 and Cutler '064. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that the combination of Tessier '046 and Cutler '064 would have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 20-22, 36, 38; Pet. Reply 1-8, 10-15.

1. Cutler '064

Cutler '064 discloses an electrical cable for electrical signal transmission purposes. Ex. 1007, 1:10-11. The outer protective coating 28 of the cable may be made of polyvinyl chloride. Pet. 38; Ex. 1007, 3:28-32.

2. Analysis

We have reviewed the parties' arguments and supporting evidence. Petitioner explains and offers supporting evidence as to how the subject matter of the challenged claims would have been obvious over Tessier '046 and Cutler '064. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner repeats the argument that Tessier '046 does not disclose "channels" as claimed. PO Resp. 17. This limitation is present in claims 22 and 27 by virtue of dependence from their respective independent claims, 17 and 24. This argument is unpersuasive for the reasons given in the analysis of the respective independent claims in the first ground of unpatentability above.

Additionally, with regard to claim 27, Patent Owner repeats the argument that Tessier '046 does not disclose twisted pair conductors and an interior support twisted together as claimed. PO Resp. 17. This limitation is present in claim 27 by virtue of its dependence from independent claim 24, and the analysis of this argument for claim 24 in the first ground of unpatentability above is equally applicable here.

Upon review of the Petition, Patent Owner's response, and Petitioner's reply, we determine that Petitioner has shown by a

preponderance of the evidence that claims 22 and 27 are unpatentable under 35 U.S.C. § 103(a) over Tessier '046 and Cutler '064.

E. Alleged Obviousness over Tessier '046 and JP '507

As noted in section I.F. above, Petitioner contends that claim 26 is unpatentable as obvious over Tessier '046 and JP '507. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that the combination of Tessier '046 and JP '507 would have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 20, 36, 39; Pet. Reply 1-8, 10-15.

1. JP '507

JP '507 discloses a cable for communications use that includes a separator (fibrous cocoon-shaped inclusion 13, or a rope- or tube-shaped inclusion 14) that extends to the jacket (casing 1). Pet. 20, 39; Ex. 1006, pp. 1-2, figs. 1a, 1b.

2. Analysis

We have reviewed the parties' arguments and supporting evidence. Petitioner explains and offers supporting evidence as to how the subject matter of the challenged claims would have been obvious over Tessier '046 and JP '507. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner repeats the arguments that Tessier '046 does not disclose "channels" or twisted pair conductors and an interior support twisted together as claimed. PO Resp. 17. These limitations are present in

claim 26 by virtue of its dependence from independent claim 24. This argument is unpersuasive for the reasons given in the analysis of claim 24 in the first ground of unpatentability above.

Upon review of the Petition, Patent Owner's response, and Petitioner's reply, we determine that Petitioner has shown by a preponderance of the evidence that claim 26 is unpatentable under 35 U.S.C. § 103(a) over Tessier '046 and JP '507.

F. Alleged Obviousness over Tessier '046 and McNeill '813

As noted in section I.F. above, Petitioner contends that claims 29, 31, and 33 are unpatentable as obvious over Tessier '046 and McNeill '813. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that the combination of Tessier '046 and McNeill '813 would have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 27-28, 36, 38; Pet. Reply 1-8, 10-15.

1. McNeil '813

McNeill '813 discloses a high performance electrical communications cable that meets or exceeds the requirements for Category 5 cable and has at least two pairs of twisted conductors 16 per channel (elongated chambers 14). Pet. 27-28, 38; Ex. 1014, 1:4-9; 2:53-55; figs. 1-3.

2. Analysis

We have reviewed the parties' arguments and supporting evidence. Petitioner explains and offers supporting evidence as to how the subject

matter of the challenged claims would have been obvious over Tessier '046 and McNeill '813. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner argues that independent claim 29 and its dependent claims 31 and 33 are patentable over Tessier and McNeill '813 because Tessier '046 does not disclose “channels” or twisted pair conductors and an interior support twisted together as claimed. PO Resp. 18.

As detailed above, the “channels” limitation of claim 29 is similar to that of claim 1. Accordingly, the analysis of claim 1 in the first ground of unpatentability is applicable to claim 29 as well.

The twisted together limitation of claim 29 differs slightly from that of independent claims 1, 17, and 24 in that claim 29 further limits the twist to be helical. As explained in our analysis of claims 1, 17, and 24 in the first ground of patentability above, Petitioner is correct that Tessier’s twisted pair conductors and interior support are helically twisted together.

Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 29, 31, and 33 are unpatentable under 35 U.S.C. § 103(a) over Tessier '046 and McNeill '813.

G. Alleged Obviousness over Tessier '046, McNeill '813, and Cheng '467

As noted in section I.F. above, Petitioner contends that claim 30 is unpatentable as obvious over Tessier '046, McNeill '813, and Cheng '467.

Claim 30 depends from independent claim 29. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that this combination would have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 20-22, 25-26, 36, 38; Pet. Reply 1-8, 10-15. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner repeats the arguments that Tessier '046 does not disclose “channels” or conductors and a support twisted together as claimed. PO Resp. 18. Patent Owner’s argument relates to claim 30 by virtue of its dependence from independent claim 29 and not by virtue of any additional limitations of claim 29. These arguments are unpersuasive for the reasons given in the analysis of independent claim 29 in the sixth ground of unpatentability above.

Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claim 30 is unpatentable under 35 U.S.C. § 103(a) over Tessier '046, McNeill '813, and Cheng '467.

H. Alleged Obviousness over Tessier '046, McNeill '813, and Cutler '064

As noted in section I.F. above, Petitioner contends that claim 32 and 34 are unpatentable as obvious over Tessier '046, McNeill '813, and Cutler '064. Petitioner provides sufficient explanations and evidence to demonstrate by a preponderance of the evidence that this combination would

have rendered the claimed subject matter obvious to one with ordinary skill in the art. Pet. 15-16, 20-22, 36, 38-39; Pet. Reply 1-8, 10-15. Our analysis will focus on the deficiencies alleged by Patent Owner.

Patent Owner repeats the arguments that Tessier '046 does not disclose “channels” or conductors and a support twisted together as claimed. PO Resp. 18. These limitations are present in claims 32 and 34 by virtue of its dependence from independent claim 29. This argument is unpersuasive for the reasons given in the analysis of claim 29 in the sixth ground of unpatentability above.

Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 32 and 34 are unpatentable under 35 U.S.C. § 103(a) over Tessier '046, McNeill '813, and Cutler '064.

I. Alleged Anticipation by JP '470

As noted in section I.F. above, Petitioner contends that claims 29, 31, and 33 are unpatentable as anticipated by JP '470. Petitioner provides detailed explanations as to how each claim element, arranged as is recited in these claims, is disclosed by JP '470. Pet. 16-17, 33-34; Pet. Reply 1-8, 10-15. Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 29, 31, and 33 are anticipated by JP '470.

1. JP '470

JP '470 discloses a cable that includes a plurality of twisted pair conductors (stranded groupings of wires 1) disposed within channels (furrows) provided in a non-conductive, unshielded interior support (core material 2). Pet. 16-17, 33-34; JP '470 at p. 1; figs. 1-2. The twisted pair conductors (wires 1) and interior support (core material 2) are helically twisted together (formed in a “reciprocatingly twisted shape”) about a common axis, and are longitudinally enclosed by an outer jacket (cable sheath 4). Pet. 16-17, 33-34; Ex. 1003, p. 1; figs. 1-2.

2. Analysis

We have reviewed the parties' arguments and supporting evidence. Petitioner explains and offers supporting evidence as to how the challenged claims are anticipated by JP '470. Our analysis will focus on the deficiencies alleged by Patent Owner.

Paralleling the argument made with regard to Tessier '046, Patent Owner argues that JP '470 is not manufactured as required by claim 29. PO Resp. 19-21.

Patent Owner's contention is premised on the interpretation that claims 29, 31, and 33 call for a process of manufacture regarding the conductors and interior support being twisted together to close the cable. As explained above, Patent Owner's argument is unpersuasive because it is not commensurate in scope with the claims at issue.

We note that claims 29, 31, and 33 recite “grooves” rather than “channels” and Patent Owner does not argue that JP ’470 does not disclose “grooves” as claimed.

Upon review of the Petition, Patent Owner’s response, and Petitioner’s reply, we determine that Petitioner has shown by a preponderance of the evidence that claims 29, 31, and 33 are anticipated by JP ’470.

IV. CONCLUSION

Petitioner has met its burden of proof by a preponderance of the evidence in showing under 35 U.S.C. § 103 that: (1) claims 1-9, 12-15, 17, 20, 21, 23, and 24 are unpatentable as anticipated by Tessier ’046; (2) claims 9-11, 18, 19, 23, 25, and 28 are unpatentable as obvious over Tessier ’046 and Cheng ’467; (3) claim 16 is unpatentable as obvious over Tessier ’046 and Burk ’710; (4) claims 22 and 27 are unpatentable as obvious over Tessier ’046 and Cutler ’064; (5) claim 26 is unpatentable as obvious over Tessier ’046 and JP ’507; (6) claims 29, 31, and 33 are unpatentable as obvious over Tessier ’046 and McNeill ’813; (7) claim 30 is unpatentable as obvious over Tessier ’046, McNeill ’813, and Cheng ’467; (8) claims 32 and 34 are unpatentable as obvious over Tessier ’046, McNeill ’813, and Cutler ’064; and (9) claims 29, 31, and 33 are unpatentable as anticipated by JP ’470.

Case IPR2013-00058
Patent 7,977,575

V. ORDER

In consideration of the foregoing, it is
ORDERED that claims 1-34 of U.S. Patent 7,977,575 are
unpatentable; and

FURTHER ORDERED that because this is a final written decision,
parties to the proceeding seeking judicial review of the decision must
comply with the notice and service requirements of 37 C.F.R. § 90.2.

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