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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BELDEN INC.¹
Appellant, Patent Owner

Appeal 2012-000943
Reexamination Control 90/009,467
Patent No. 5,424,491²
Technology Center 3900

Before DANIEL S. SONG, JOSIAH C. COCKS, and
SCOTT E. KAMHOLZ, *Administrative Patent Judges*.

KAMHOLZ, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Belden Inc. is the real party in interest. App. Br. 2.

² Issued June 13, 1995.

Appeal 2012-000943
Reexamination Control 90/009,467
Patent No. 5,424,491

The Patent Owner appeals under 35 U.S.C. §§ 134(b) from a Final Rejection by the Examiner of claims 1-16, claims 6-16 having been added during the reexamination. We have jurisdiction under 35 U.S.C. § 6(b)(2). In addition to the Appeal Brief (herein “App. Br.”), the Patent Owner also relies on a Reply Brief filed on August 23, 2011 (hereinafter “Reply Br.”), a Supplemental Reply Brief filed on December 5, 2011 (hereinafter “Supp. Reply Br.”), a Declaration of Mr. William T. Clark dated June 4, 2010 (“Clark Declaration”), and testimony of various witnesses from the trial transcript of Case No. 08-0063, *Belden Technologies, Inc. et al. v. Superior Essex, Inc. et al* (D. Del.). The Examiner filed an Answer (hereinafter “Ans.”) on June 23, 2011 and a Supplemental Answer (hereinafter “Supp. Ans.”) on October 4, 2011. An oral hearing was held on February 6, 2013.

We AFFIRM.

The invention is directed to telecommunications cables. Claim 1 is representative and is reproduced below:

1. A telecommunications cable comprising a core having a plurality of pairs of twisted together individually insulated conductors with all of the conductors being of the same gauge and the maximum twist lay of the plurality of pairs being 2.00 inches with a first group of the plurality of conductor pairs having twist lays within a first range, the conductors of the first group having the same insulation thickness which is consistent with providing a nominal characteristic impedance for each conductor pair of the first group within desirable limits and an acceptable signal attenuation, and at least a second group of the plurality of conductor pairs having twist lays within a second range, the conductors of the second group having the same insulation thickness which is different from that for the first group and which is consistent with providing a nominal character-

istic impedance for each conductor pair of the second group which is also within the desirable limits and an acceptable signal attenuation.

The evidence relied upon by the Examiner in rejecting the claims is:

Parcé	US 2,792,442	May 14, 1957
Beggs et al.	US 4,697,051	Sep. 29, 1987
Keller et al.	US 4,773,867	Sep. 27, 1988
Sidi et al.	US 5,010,210	Apr. 23, 1991

The Examiner rejected the following claims under 35 U.S.C. § 103(a) as unpatentable over the noted combination of references:

1. Claims 1-2, 6-10 and 14-16 based on the combination of Parcé and either Sidi or Beggs. Ans. 5.
2. Claims 3 and 11 based on the combination of Parcé; either Sidi or Beggs; and Keller. Ans. 11.
3. Claims 4, 5, 12, and 13 based on the combination of Parcé, Sidi, and Beggs. Ans. 13.

ANALYSIS

1. Obviousness of claims 1, 2, 6-10, and 14-16 over Parcé and either Sidi or Beggs

a. Claims 1, 2, and 6-8

Appellant argues claims 1, 2, and 6-8 as a group. App. Br. 3. We select claim 1 as representative for purposes of deciding the appeal.

In rejecting claim 1 for obviousness over Parcé in combination with either Sidi or Beggs, the Examiner found that Parcé discloses a telecommunications cable having all limitations of claim 1 except “the

maximum twist lay of the plurality of pairs being 2.00 inches.” Ans. 5-7. The Examiner further found that Sidi discloses a telecommunications cable in which conductors have “[a] **twist lay ... in the range of 1.00 to 2.00 inches.**” *Id.* at 7 (quoting Sidi, col. 3, ll. 1-2). The Examiner also found that Beggs discloses a telecommunications cable having conductors with a “twist length [that] falls in the range of about 0.25 to 1.6 inches.” *Id.* (quoting Beggs, col. 6, ll. 16-17). The Examiner yet further found that Sidi, as acknowledged in the ’491 patent itself in a discussion of Sidi, discloses an advantage gained by using small twist lays in telecommunications cable, namely, “[reducing] electromagnetic interference ... to provide minimization in crosstalk.” *Id.* (quoting discussion of Sidi at col. 1, ll. 29-32 of the ’491 patent). The Examiner concluded that it would have been obvious to modify Parc  to employ short twist lays as disclosed by Sidi or Beggs in view of the advantage in such a modification as appreciated by Sidi, and that one of ordinary skill in the art would have had a reasonable expectation of success in making this modification “because of the predictable result of combining such features.” *Id.* at 7-8.

Appellant responds with several arguments, each of which we consider in turn.

1) Failure of cited art to disclose “telecommunications cable”

Appellant argues that the recitation in claim 1 of “telecommunications cable” limits the scope of claim 1 to “a cable configured to transmit high-frequency data” as distinguished from a “conventional cable,” which is designed for voice frequency ranges and is unsuitable for high frequency data transmission. App. Br. 8-9. Appellant notes that the ’491 patent

“expressly identifies” the invention as a “high frequency cable” that is intended to solve problems associated with “conventional cable designs.” *Id.* at 9. Appellant, citing the “own lexicographer” rule, points to various passages in the ’491 patent that purport to define “telecommunications cable” as “a cable configured to transmit high-frequency data.” *Id.*³

In response, the Examiner takes the position that the passages Appellant cites do not expressly state that the unqualified term “telecommunications cable” is defined as “a cable configured to transmit high-frequency data” and that the sole occurrence of “telecommunications cable” in the claim— in the preamble— imposes no structural limitation, because the body of the claim fully sets out the cable structure. Ans. 17-18. Appellant argues in reply that the claim term “telecommunications cable” must be interpreted in a manner consistent with the Specification and that, because the Specification is directed to a telecommunications cable that is configured to transmit high frequency data, so too must the claim be interpreted not to encompass cables that are incapable of high frequency data transmission. Reply Br. 4-6.

³ Appellant also refers to a construction of this term in a co-pending litigation, Case No. 08-0063, *Belden Technologies, Inc. et al. v. Superior Essex, Inc. et al.* (D. Del.). App. Br. 10. We understand that the Court in that case vacated all judgments prior to a consent final judgment. *See* “Order Vacating Judgments,” paper no. 329, and “Consent Final Judgment,” paper no. 330. We will therefore not consider further any findings, conclusions, or judgments from that proceeding. We find no indication in the record of the present proceeding that Appellant brought this result of the litigation to the attention of the Office or the Board. Appellant is reminded of its continuing obligation under 37 C.F.R. § 1.565(a) to notify the Office of concurrent proceedings, including litigation “and the *results of such proceedings*” (emphasis added).

The Examiner counters that the Specification passages cited by Appellant as supporting the definition of “telecommunications cable” do not meet the requirements in M.P.E.P § 2111 for an express definition, that “**it is the structure recited in the body of the claim [that] defines the term ‘telecommunications cable’ recited in the preamble,**” and that Parc e in any event specifically discloses suitability of its cables for “**higher frequenc[y]**” operation. Supp. Ans. 3-4 (quoting Parc e, col. 1, ll. 19-24).

Appellant then argues:

Even if the ’491 patent did not explicitly define the term “telecommunications cable” to mean “a cable configured to transmit high frequency data” (which Patent Owner does not concede), this meaning is clearly correct given the usage of the term in the context of the specification.

Supp. Reply Br. 3. Appellant further argues that Parc e’s mention of “higher frequencies” is irrelevant to the proper construction of “configured to transmit high frequency data” in the present case because it does not reflect ordinary and customary meaning of “high frequency” “**‘at the time of the invention,** i.e., as of the effective filing date of the patent application.’”

Supp. Reply Br. 4 (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 131 (Fed. Cir. 2005) (en banc)).

We agree with the Examiner that the claim term “telecommunications cable” is not limited to “a cable configured to transmit high frequency data.” While the ’491 patent Specification does identify “high frequency cable” as the invention (*see* Abstract) and does draw numerous distinctions between “conventional cable” and high-frequency cable (*see, e.g.*, col. 1, ll. 7-23), it does not go so far as to define the term “telecommunications cable” as “a

cable configured to transmit high frequency data” either expressly or impliedly by its use in the context of the Specification. None of the Specification passages Appellant cites amounts to an explicit definition of “telecommunications cable,” let alone an explicit definition of that term as “a cable configured to transmit high frequency data.” Instead, the Specification utilizes the term “telecommunications cable” more generally to refer to different types of cables, and consistently *qualifies* its use of the term “telecommunications cable” when describing these two types of cable, i.e., in describing such cable for high frequency use versus for conventional low-frequency use. *See, e.g.*, col. 3, ll. 20-21 (“FIG. 2 is a cross-sectional view through a telecommunications cable for high frequency use”); ll. 57-59 (“For normal considerations in telecommunications cable design, for normal voice frequency cables with a long twist lay, ...”); ll. 67-68 (“However, when a telecommunications cable is designed to operate at high frequencies, ...”); col. 4, ll. 31-34 (“this places a limit on the number of twisted pairs which may be placed in the core of a high frequency telecommunications cable...”).

This consistent use of qualification when employing the term “telecommunications cable” in the Specification indicates that the term does not refer exclusively to high-frequency cable, but rather to both types of cable. Thus, within the context of the Specification, the term “telecommunications cable” is not used to refer specifically to cables configured to transmit high frequency data or in a manner that excludes “conventional” voice frequency cables. Rather, the term is used to refer to these cable types generally and is qualified by a phrase such as “voice

frequency” or “high frequency” to specify what type of telecommunications cable is being discussed. A fair reading of the Specification therefore does not bear out Appellant’s argument.

Appellant’s remaining arguments concerning the claim limitation “telecommunications cable” (App. Br. 10-12; Reply Br. 6-7) are all premised on this incorrectly narrow construction and are therefore not commensurate in scope with claim 1.

For these reasons, we are not persuaded that the Examiner erred in finding that Parc  discloses a “telecommunications cable.”

2) Failure of cited art to disclose “a plurality of pairs of twisted together individually insulated conductors”

The Examiner found that Parc  discloses “a plurality of pairs of twisted together individually insulated conductors,” relying principally on the following passage from column 4, line 53 to column 5, line 2 of Parc :

The examples described are relative to a 12 star-quad with two layers. Within the scope of the present invention, similar arrangements may be applied for equalizing the constants of the circuits of cables with multiple layers consisting of star quads, multiple twin quads **or pairs**.

Ans. 5-6 (emphasis supplied by Examiner).

While acknowledging this disclosure in Parc , Appellant characterizes Parc ’s references to “pairs” as “very limited” and argues that Parc  “provides no instruction on which ‘arrangements’ it is referring to, or on how the arrangements should be modified to use with twisted pairs.” App. Br. 13; Reply Br. 8. Appellant also argues that, to the extent that the Examiner takes the position that substituting pairs for quads would have

been obvious, the substitution would “not have been possible,” “would not have yielded predictable results,” Parc  “gives no guidance” as to how to do this, and is moreover “internally inconsistent” as to insulation thickness and other properties. App. Br. 18-21.

Appellant’s arguments do not persuade us of error. The Examiner found, and we agree, that Parc  expressly discloses that his cable “arrangements may be applied for ... cables with multiple layers consisting of ... pairs.” Parc  col. 4, l. 54 to col. 5, l. 2. Appellant acknowledges that Parc  discloses pairs but argues that Parc  does not specify which arrangements can accommodate pairs or how arrangements should be modified to accommodate them. We disagree. Parc  unequivocally discloses that “similar arrangements” to the examples described for two-layer star quads may be applied to cables with pairs. *Id.* Parc  also specifically identifies Fig. 4 as illustrating “a conductor in a pair or quad of a telephone cable, insulated according to the invention.” *Id.* at col. 2, ll. 37-38. From this it is clear that Parc ’s disclosure of “pairs” is directly applicable to all embodiments of the invention.

Appellant’s arguments relating to the unobviousness of modifying Parc ’s cables to incorporate pairs are inapposite, because the Examiner did not premise the rejection on such a modification. The Examiner did not suggest that one must look beyond Parc  to reach the limitation in question. Rather, the Examiner simply relied upon Parc ’s own disclosure that his cable arrangements are equally applicable to pairs as they are to quads in finding that Parc  discloses the limitation at issue.

For these reasons, we are not persuaded that the Examiner erred in finding that Parc  discloses “a plurality of pairs of twisted together individually insulated conductors.”

3) Whether one having ordinary skill would have combined Parc  with Sidi or Beggs

Appellant argues that one having ordinary skill in the art at the time the '491 patent was filed would not have looked to Parc  for teachings relevant to the design of high-frequency telecommunications cables because Parc  was long outdated by 1990's standards and because Parc  would have required significant updating to be suitable. App. Br. 13-21; Reply Br. 8-11; Supp. Reply Br. 4-5. Appellant also argues that one having ordinary skill would not have modified Parc  with Sidi's or Beggs's short twist lays because “short twist lays at low frequencies would result in poor electrical characteristics.” App. Br. 16 (citing Clark Decl. para. 9).

Appellant's arguments do not persuade us of error in the rejection. Arguments directed to the unsuitability of Parc  as a starting point for high-frequency cable design are not commensurate in scope with claim 1, because claim 1 is not limited to cables “configured to transmit high frequency data” for reasons given above, and because claim 1 recites no structural features that distinguish its subject matter from lower-frequency cables such as Parc 's.

Paragraph 9 of Mr. Clark's declaration, when considered along with all other evidence of record, fails to establish preponderantly that one of ordinary skill in the art would not have found it obvious to modify Parc  to have short twist lays. Paragraph 9 reads, in full:

9. The cables described by *Parce* would not employ twist lays of less than 2.0 inches because such short twist lays would be incompatible with the low carrier frequencies of up to 240 kHz in use at the time of *Parce*. Shorter twist lays, at such low frequencies would in fact be disadvantageous due to short twist lays incurring higher manufacturing costs and resulting in poorer electrical characteristics such as, for example, higher attenuation levels.

Clark Decl. para. 9. But other evidence of record tends to establish the obviousness of modifying *Parcé* to have the claimed short twist lays. In particular, *Sidi* discloses that even low frequency cables benefit from short twist lays. *See Sidi*, col. 2, ll. 14-15 (“[T]he small twist lay minimizes crosstalk at the above voice frequencies [up to about 4 or 4.5 megabits]”⁴). Mr. Clark’s evidence does not establish error in or unreliability of *Sidi*’s disclosure. While paragraph 9 of Mr. Clark’s declaration identifies certain disadvantages of employing short twist lays, it fails to contradict or dispel the advantage identified in the evidence of record.⁵

The relevant evidence considered as a whole tends to establish that there were both advantages and disadvantages to employing short twist lays in low-frequency cable. The mere existence of disadvantages resulting from a modification, however, does not establish the unobviousness of the modification, especially when the modification also offers an advantage.

⁴ *See Sidi*, col. 1, ll. 8-9 for material added to quotation.

⁵ Appellant also presented trial testimony of Respondent’s expert, Mr. Les Baxter. App Br. 15-16. Setting aside whether we should consider Mr. Baxter’s testimony at all given the result of that litigation, *see n. 3, supra*, we find Mr. Baxter’s evidence to be not commensurate in scope with claim 1, as it is directed to obviousness of making a high-speed cable in view of low-speed prior art cables.

Tradeoffs regarding features, costs, manufacturability, or the like, do not necessarily prevent the combination. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (“a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”); *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”). The disadvantages Mr. Clark asserts, when set against Sidi’s advantage, do not establish the nonobviousness of the combination.

For these reasons, we are not persuaded that the Examiner erred in finding it reasonable to combine Parc  with Sidi or Beggs.

4) *Whether Parc  is analogous*

Appellant’s argument that Parc  is non-analogous art is premised on the assertions that the claimed invention is limited to cables configured to transmit high frequency data and that Parc ’s cables are not so configured. App. Br. 21-22; Reply Br. 1-12. We disagree with Appellant and find that Parc , the other references of record, and the claimed invention all concern the same field of endeavor, *viz.*, cables for transmission of electrical signals. Moreover, the claims are not limited to cables configured to transmit high frequency data, for reasons explained above.

b. Claims 9, 10, and 14-16

Appellant argues these claims as a group. App. Br. 3. We select claim 9 as representative.

Claim 9 depends from claim 1 and further requires, among other things, that the conductors of the first and second groups be spaced apart by their insulations. The Examiner found that Parc 's fig. 3 "discloses that the conductors of the second group (outer layer) are spaced apart by their insulations." Ans. 9.

Appellant argues that in the '491 patent shows in Fig. 3 that "the insulators [*sic* conductors] are spaced apart only by their insulations" while Parc 's conductors, in contrast, "are spaced apart by a combination of insulating yarn [*sic* conductors] 12 [*sic* 21], 22, insulating tape 11 [*sic* 3], and a quad-core 8" such that "Parc  does not teach the combination of features of claim 9." App. Br. 22. Appellant further argues that one of ordinary skill in the art would understand that the claim language "spaced apart by their insulations" requires the insulation to provide spacing. Reply Br. 13.

The Examiner argues that claim 9 does not require that the insulators be spaced apart *only* by their insulations and that "[t]he language of the claim does not exclude other insulation layers." Ans. 26. The Examiner further points out that claim 9 uses the transition phrase "comprising" and so does not exclude other insulation layers. Supp. Ans. 9.

Appellant's arguments do not persuade us of error in the rejection. Appellant seeks to justify a narrow construction of "spaced apart by their insulations" as "spaced apart *only* by their insulations" with reference to an

embodiment illustrated in the patent and no more than a bare assertion of what one having ordinary skill in the art would have understood the term to mean. App. Br. 22. While a patentee might not be obliged to make a “clear disavowal” to justify a narrow construction, *see In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1149-50 (Fed. Cir. 2012), there must be some indication in the specification that the patentee intended the invention to exclude a particular arrangement or to be limited to certain embodiments. *See, e.g., Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1375 (Fed. Cir. 2012) (quoting *Silicon Graphics, Inc. v. ATI Techs., Inc.*, 607 F.3d 784, 792 (Fed.Cir.2010)). Here, patentee offers none. We agree with the Examiner that the broadest reasonable interpretation of “spaced apart by their insulations” is not limited to “spaced apart *only* by their insulations.”

Moreover, Parc ’s fig. 3, which was specifically cited by the Examiner in rejecting claim 9, shows that the insulation layers in adjacent conductors of the outer-layer quad touch one another. Those conductors are therefore spaced apart from one another only by their insulations. Appellant has not explained why the insulating tape 3 and insulating conductors 21, 22 that are wrapped around each conductor are not properly considered “their insulations.” Thus, even if claim 9 is construed as Appellant urges, Parc ’ still discloses this limitation.

We therefore are not persuaded of error in rejecting these claims.

For these reasons, we affirm the rejection of claims 1, 2, 6-10, and 14-16 under 35 U.S.C. § 103(a) for obviousness over Parc ’ and either Sidi or Beggs.

2. Obviousness of claims 3 and 11 over Parc ; Sidi or Beggs; and Keller.

a. Claim 3

Appellant refers to its arguments concerning patentability of claim 1. App. Br. 23. Appellant’s only additional argument is that “Keller does not remedy the deficiencies of Parc[ ] and Sidi or Beggs.” *Id.* As we find no “deficiencies” in these references as applied by the Examiner, we affirm the rejection of claim 3 for reasons similar to those given above with respect to claim 1.

b. Claim 11

Appellant refers to its arguments concerning patentability of claims 1 and 9. App. Br. 23. Appellant’s only additional argument is that “Keller does not remedy the deficiencies of Parc[ ] and Sidi or Beggs.” *Id.* As we find no “deficiencies” in these references as applied by the Examiner, we affirm the rejection of claim 11 for reasons similar to those given above with respect to claims 1 and 9.

3. Obviousness of claims 4, 5, 12, and 13 over Parc , Sidi, and Beggs.

a. Claims 4 and 5

Appellant argues claims 4 and 5 as a group. App. Br. 23. We select claim 4 as representative.

Claim 4 depends from claim 1 and further requires that “the conductors are each of 24 AWG and have different twist lays from 0.25 to 0.86 inches with the conductors in a plurality of conductor pairs with twist lays within a lower range each having an insulation thickness which is

greater than an insulation thickness of the other conductor pairs with twist lays within an upper range.” App. Br. 30.

The Examiner found that Parc  discloses different twist lays (Ans. 6), and that Sidi discloses 24 AWG conductors having short twist lays in the claimed range. Ans. 13. While acknowledging that Parc  discloses “the use of thinner insulation... with tighter twist lays” (in contrast to the claim), the Examiner found that Parc  invites the artisan to “reverse[.]” adjustments as needed to achieve desired changes in the dielectric constant and that the “finite” number of combinations— having the thicker insulation with either the longer or shorter range of twist lays— would have made it obvious to try the claimed combination in light of the prior art. Ans. 13-14.

Appellant argues that (a) the Examiner failed to establish that there was a recognized problem or need in the art, (b) erroneously found that there was a finite number of solutions, given the complexities of high-frequency cable design, and (c) failed to show that a person having ordinary skill in the art would have had a reasonable expectation of success, again given the complex and unpredictable nature of designing high-frequency telecommunications cables. App. Br. 25-28; Reply Br. 14-16.

Appellant’s arguments do not persuade us of error in the rejection. Arguments (b) and (c) are wrongly premised on the assertion that the claims are limited to cables configured to transmit high frequency data; these arguments are therefore not commensurate in scope with the claims. Argument (a) is not borne out by a preponderance of evidence in the record. The Examiner correctly observed that “Parc[ ] demonstrates that one of ordinary skill in the art would know that twist lay, dielectric constant and

insulation thickness could be manipulated to achieve certain characteristic impedance and attenuation in a conductor.” Ans. 14. Given the knowledge from Parc  that changing insulation thickness would affect attenuation, we do not agree with Appellant that the Examiner erred in concluding that the claimed invention would have been obvious to try. For these reasons, we affirm the rejection of claims 4 and 5.

b. Claims 12-13

Appellant argues claims 12 and 13 as a group. App. Br. 23. We select claim 12 as representative for purposes of deciding the appeal.

Appellant refers to its arguments concerning patentability of claims 1, 4, and 9. App. Br. 28-29. Appellant’s only additional argument is that “Beggs does not remedy the deficiencies of Parc[ ] and Sidi.” *Id.* As we find no “deficiencies” in these references as applied by the Examiner, we affirm the rejection of claims 12 and 13 for reasons similar to those given above with respect to claims 1, 4, and 9.

DECISION

The Examiner’s Final Rejection of claims 1-16 is **AFFIRMED**.

Requests for extensions of time in this ex parte reexamination proceeding are governed by 37 C.F.R. § 1.550(c). *See* 37 C.F.R. § 41.50(f).

AFFIRMED

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Appeal 2012-000943
Reexamination Control 90/009,467
Patent No. 5,424,491

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