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Paper 66
Entered: March 3, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAPTIONCALL, L.L.C.,
Petitioner,

v.

ULTRATEC, INC.,
Patent Owner.

Case IPR2013-00543
Patent 7,555,104 B2

Before WILLIAM V. SAINDON, BARBARA A. BENOIT, and LYNNE E. PETTIGREW, *Administrative Patent Judges*.

PETTIGREW, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence that claims 1 and 2 of U.S. Patent No. 7,555,104 B2 (Ex. 1002, "the '104 patent") are unpatentable.

A. Procedural History

Petitioner, CaptionCall, L.L.C., filed a Petition for *inter partes* review of claims 1 and 2 of the '104 patent. Paper 1 ("Pet."). Patent Owner, Ultratec, Inc., did not file a Preliminary Response. On March 5, 2014, pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review for claims 1 and 2 of the '104 patent on the ground of obviousness under 35 U.S.C. § 103(a) over Ryan and McLaughlin.[1] Paper 6 ("Inst. Dec.").

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 20, "PO Resp."), and Petitioner filed a Reply to Patent Owner's Response (Paper 33, "Reply"). Patent Owner also filed a Motion to Exclude Evidence. Paper 42 ("PO Mot. to Exc."). Petitioner filed an Opposition (Paper 49, "Pet. Opp. to Mot. to Exc.") to Patent Owner's Motion, and Patent Owner filed a Reply to Petitioner's Opposition (Paper 50, "PO Reply to Opp. to Mot. to Exc.").

An oral hearing was held on November 19, 2014.[2]

B. Related Proceedings

Petitioner represents that Patent Owner asserted the '104 patent against Petitioner's parent company in the following district court proceeding: *Ultratec, Inc. v. Sorenson Communications, Inc.*, No. 13-CV-00346 (W.D. Wis.). Pet. 4. Petitioner also represents that in the same

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[1] U.S. Patent No. 5,809,112, issued Sept. 15, 1998 (Ex. 1005, "Ryan"); U.S. Patent No. 6,181,736 B1, issued Jan. 30, 2001 (Ex. 1012, "McLaughlin").

[2] This proceeding and IPR2013-00540, IPR2013-00541, IPR2013-00542, IPR2013-00544, IPR2013-00545, IPR2013-00549, and IPR2013-00550 involve the same parties and similar issues. The oral arguments for all eight reviews were merged and conducted at the same time. A transcript of the oral hearing is included in the record as Paper 65.

district court proceeding, Patent Owner asserted the following patents at issue in related *inter partes* reviews: U.S. Patent No. 6,233,314 (Case IPR2013-00540), U.S. Patent No. 5,909,482 (Case IPR2013-00541), U.S. Patent No. 7,319,740 (Case IPR2013-00542), U.S. Patent No. 8,213,578 (Case IPR2013-00544), U.S. Patent No. 6,594,346 (Case IPR2013-00545), U.S. Patent No. 6,603,835 (Case IPR2013-00549), and U.S. Patent No. 7,003,082 (Case IPR2013-00550). Pet. 4.

C. The '104 Patent

The '104 patent describes a system that assists deaf, hard of hearing, or otherwise hearing-impaired individuals in using telephones. Ex. 1002, 1:23–26. A conventional system uses a device that includes a keyboard, a display, and a specific type of modem, and is known as a telecommunication device for the deaf (TDD), a text telephone (TT), or a teletype (TTY). *Id.* at 1:34–39. When a hearing person who does not have access to a TDD wishes to communicate with a hearing-impaired person who uses a TDD, the parties may utilize a relay system, in which a human intermediary, known as a "call assistant," communicates with the hearing user by voice and with the hearing-impaired user by using a TDD. *Id.* at 1:62–2:7. In a conventional relay system, the call assistant types, at a TDD keyboard, the words spoken by the hearing user and voices to the hearing user the words received on the TDD from the hearing-impaired user. *Id.* at 2:7–11.

The '104 patent relates to a relay system to improve performance of voice-to-text interpretation for translating between hearing-impaired and hearing users. *Id.* at 3:54–56. Instead of typing the hearing user's words, the call assistant speaks those words into a microphone that transmits the voice of the call assistant to a computer with voice recognition software

trained specifically to the voice of the call assistant. *Id.* at 6:3–20. Using the voice recognition software, the computer translates the words of the call assistant to digital text, which is sent to a display of the hearing-impaired user. *Id.* at 6:32–39.

The '104 patent also describes a captioned telephone device at the site of the assisted user. *Id.* at 8:52–9:3. Figure 4, reproduced below, illustrates the setup of a telephone call involving captioned telephone device 72:

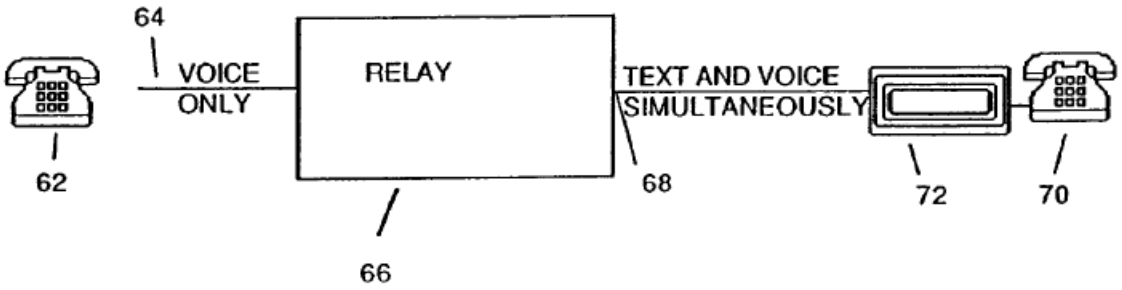

FIG. 4

As shown in Figure 4, a hearing user at telephone 62 communicates with relay 66 through telephone line 64. *Id.* at 8:55–56. The relay communicates both the voice of the hearing user and a transcription of the text of the conversation through telephone line 68 to an assisted user. *Id.* at 8:56–58. At the assisted user's site are captioned telephone device 72 and conventional telephone 70. *Id.* at 8:58–60. Captioned telephone device 72 is constructed to accomplish two objectives: filtering, or separating, the voice signal from the digital signals carrying text information, and creating a visual display of the text information for the assisted user. *Id.* at 8:60–66. The captioned telephone device assists "the user to understand a greater portion of the conversation by providing a visually readable transcription of

the text of the telephone conversation so that the assisted user can read any words that he or she cannot hear properly." *Id.* at 8:66–9:3.

D. Illustrative Claim

Claims 1 and 2 are the only claims of the '104 patent and are both independent. Claim 1 is illustrative:

> 1. A relay system using a call assistant for facilitating communication between a hearing user and an assisted user, the system comprising
>
> a relay at the location of the call assistant, the relay including a personal computer with voice recognition software trained to the voice of the call assistant to translate the words spoken by the call assistant into a digital text stream containing the words spoken by the call assistant;
>
> a captioned telephone device within sight of the assisted user and including a display visible to the assisted user; and
>
> communication connections between the hearing user and the relay and between the assisted user and the relay, the communication connections independently selected from the group consisting of wired telephone connection, wireless telephone connection, PCS connection and [I]nternet connection;
>
> the system connected such that if the call assistant repeats the words spoken by the hearing user, the digital text stream created by the relay causes the words spoken by the hearing user to appear on the display of the captioned telephone device.

Id. at 9:35–10:17.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent 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); *see*

also In re Cuozzo Speed Techs., LLC, No. 2014-1301, slip op. at 11–19 (Fed. Cir. Feb. 4, 2015). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning, as understood by a person of ordinary skill in the art, in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

We construe the claim language below in accordance with these principles. No other terms require express construction.

1. "captioned telephone device"

Claim 1 recites "a *captioned telephone device* within sight of the assisted user and including a display visible to the assisted user." Ex. 1002, 10:4–5 (emphasis added). Claim 2 recites "a *captioned telephone device* at the location of the assisted user and including a display visible to the assisted user." *Id.* at 10:27–28 (emphasis added). Petitioner does not propose a construction for "captioned telephone device," but suggests a captioned telephone device may not need to be capable of receiving the voice of the hearing user in addition to a text transcription of the spoken words. *See, e.g.*, Pet. 25 ("*Ryan* discloses a TDD within sight of the assisted user and including a display visible to the assisted user. To the extent that the '104 Patent requires a captioned telephone device to be a device capable of receiving both voice and text of the hearing user, *McLaughlin* discloses such a device.").

The ordinary meaning of "telephone" is "[a]n instrument that converts voice and other sound signals into a form that can be transmitted to remote locations and that receives and reconverts waves into sound signals."[3] In the context of voice communication, a "caption" is text that communicates dialogue.[4] Thus, according to its ordinary meaning, a captioned telephone device is a device that transmits and receives voice signals and displays text.

The '104 patent uses the term "captioned telephone device" in a way that is consistent with this ordinary meaning. The written description of the '104 patent describes a captioned telephone device as a device that receives both voice signals and text information and displays the text information to an assisted user. Ex. 1002, 8:60–66 ("The captioned telephone device 72 is constructed to accomplish two objectives. One objective is to filter, or separate, the digital signals carrying the text information from the voice signal. The other objective is to take the digital signals and create a visual display of the text information for the assisted user."); *see also id.* at Fig. 4 (showing a simultaneous text and voice connection between captioned telephone device 72 and relay 66). Note that a captioned telephone device need not output any audio signals to the assisted user. *See id.* at 8:58–60 (describing a captioned telephone device and telephone at an assisted user's

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[3] THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1846 (3d ed. 1992); THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1779 (4th ed. 2006).

[4] THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 286 (3d ed. 1992) (defining "caption" in relevant part as "2. A subtitle in a motion picture."); THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 278 (4th ed. 2006) (defining "caption" in relevant part as "2. A series of words . . . that communicate dialogue to the hearing-impaired or translate foreign dialogues.").

location as two separate devices); *id.* at Fig. 4 (illustrating captioned telephone device 72 and telephone 70 as two separate devices).

In light of the use of "captioned telephone device" in the '104 patent and the ordinary meaning of the term, we construe "captioned telephone device" as a device that transmits and receives voice signals, receives text information, and displays text to an assisted user.

2. "trained to the voice of the call assistant"

Neither party expressly proposes a construction for "trained to the voice of the call assistant," which appears in both claims 1 and 2. *See* Pet. 11–12; PO Resp. 11–16; Reply 3. In their dispute over the teachings of the asserted prior art, however, the parties articulate different views as to how the term should be construed. Patent Owner construes "trained to the voice of the call assistant" to require training to recognize individual voices, PO Resp. 27, presumably trained to the voice of one, and only one, call assistant and to preclude training for a type of speech used by a group of people (such as a regional accent) that could apply to more than one call assistant. Patent Owner also seeks to construe "trained to the voice of the call assistant" as having a temporal constraint so as to preclude training at the time when the voice recognition computer software package is "designed in advance of implementation at the source code level." *Id*. (emphasis omitted). According to Patent Owner, "trained to the voice of the call assistant" precludes software that is "built" to recognize the voice of a particular agent. *Id.* at 28. Petitioner disagrees. Reply 8–9.

The '104 patent does not set forth a special definition for "training." In the "Brief Summary of the Invention," however, the '104 patent refers to "a speech recognition computer program which has been trained to the voice

pattern of the call assistant." Ex. 1002, 2:54–56 (emphasis added). In the context of describing a relay, the written description explains that "the call assistant operates at a computer terminal which contains a copy of a voice recognition software package which is specifically trained to the voice of that *particular* call assistant." *Id.* at 6:17–20 (emphasis added). Thus, the '104 patent contemplates software trained to "a voice *pattern* of the call assistant" as well as software "specifically trained to the voice of [a] *particular* call assistant." Neither description of training, however, indicates when or how the training occurs. Patent Owner, relying on its declarants Mr. James A. Steel, Jr. and Mr. Paul W. Ludwick, asserts that a person of ordinary skill in the art would not have understood software that is "designed" in advance to recognize the voice of particular agents to be software that is "trained to recognize individual voices," because such technology was not used in telecommunications relay service in 1994. PO Resp. 27–28 (citing Ex. 2001 ¶ 32; Ex. 2003 ¶¶ 19, 21–26). We note that technology available in 1994 has little probative value here because the earliest date of invention for claims of the '104 patent is 2001.

We give claim language its broadest reasonable construction in light of the specification of the patent in which it appears. Thus, we will not limit "trained to the voice of the call assistant" to require training to the voice of one particular call assistant, because the claim language encompasses the invention as disclosed in the written description of the '104 patent—software trained to a voice *pattern* of a call assistant. Ex. 1002, 2:54–56 ("Summary of the Invention"). Nor will we limit "trained to the voice of the call assistant" to a particular time at which training must occur or to a

particular manner of training that is not found in the claims or the written description of the ’104 patent.

B. Principles of Law

To prevail in challenging Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A 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 of the invention to a person having ordinary skill in the art. *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).

C. Patent Owner’s Motion to Exclude Testimony by Mr. Occhiogrosso

Patent Owner seeks to exclude the testimony of Mr. Benedict Occhiogrosso (Exs. 1019, 1036, 2008, 2009, and 2014) on the theory that he is not qualified as an expert under Federal Rule of Evidence 702

("FRE 702").[5,6] PO Mot. to Exc.; PO Resp. 7–11. FRE 702 provides that a witness qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion if (a) the expert's knowledge will help the trier of fact to understand the evidence or to determine a fact in issue, (b) the testimony is based upon sufficient facts or data, (c) the testimony is the product of reliable principles and methods, and (d) the witness has applied the principles and methods reliably to the facts of the case. Testimony on the issue of unpatentability proffered by a witness who is not "qualified in the pertinent art" generally is not admissible under FRE 702. *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008). In determining who is qualified in the pertinent art under FRE 702, we need not find a complete overlap between the witness's technical qualifications and the problem confronting the inventor or the field of endeavor. *See SEB S.A. v. Montgomery Ward & Co., Inc.*, 594 F.3d 1360, 1372–73 (Fed. Cir. 2010) (upholding admission of the testimony of an expert who admittedly lacked expertise in the design of the patented invention, but had experience with materials selected for use in the invention); *Mytee Prods., Inc. v. Harris Research, Inc.*, 439 Fed. App'x 882, 886–87 (Fed. Cir. 2011) (non-precedential) (upholding admission of the

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[5] Patent Owner also seeks to *exclude* Mr. Occhiogrosso's testimony under 37 C.F.R. § 42.65. PO Mot. to Exc. 1. Rule 42.65, however, addresses (a) the weight given to expert testimony that does not disclose underlying facts or data on which the opinion is based, (b) the showing required if a party seeks to rely on a technical test or data from such a test, and (c) the exclusion of expert testimony on United States patent law or patent examination practice. As such, Rule 42.65 does not apply to a determination whether to exclude Mr. Occhiogrosso's testimony.

[6] With some enumerated exceptions, the Federal Rules of Evidence apply to an *inter partes* review. 37 C.F.R. § 42.62.

testimony of an expert who "had experience relevant to the field of the invention," despite admission that he was not a person of ordinary skill in the art).

Patent Owner contends that, to qualify as an expert under FRE 702, Mr. Occhiogrosso must be a person of ordinary skill in the art, and that Mr. Occhiogrosso is not a person of ordinary skill in the art because he does not have "general knowledge and understanding of the telecommunications needs of the deaf and HOH [(hard of hearing)]" or "experience with the development of assistive telecommunications technology for such individuals." PO Mot. to Exc. 1–4; *see also id.* at 5–7 (discussing Mr. Occhiogrosso's experience with respect to these areas). Petitioner responds that Patent Owner's definition of the level of ordinary skill in the art conflates a requirement for skill in the relevant technical art ("telecommunications systems [having] voice-to-text transcription") with skill in one particular commercial sector that applies that technical art ("telecommunications services *specifically* designed for the deaf or hard of hearing"). Pet. Opp. to Mot. to Exc. 1–2.

Patent Owner's arguments are unpersuasive at the outset because, to testify as an expert under FRE 702, a person need not be a person of ordinary skill in the art, but rather "qualified in the pertinent art." *Sundance*, 550 F.3d at 1363–64; *see SEB*, 594 F.3d at 1372–73; *Mytee*, 439 Fed. App'x at 886–87. Patent Owner's arguments are also unpersuasive because they attempt to constrict the "pertinent art," i.e., the pertinent technology, to a particular subset of individuals who use the pertinent technology, rather than the pertinent technology itself. *See* Pet. Opp. to Mot. to Exc. 4–5 (arguing

that the problems in the pertinent art are not "uniquely related" to the deaf and hard-of-hearing).

The technology at issue in the '104 patent "relates to the general field of telephone communications." Ex. 1002, 1:22–23. The '104 patent focuses on a particular application of that technology: people who need assistance in using telecommunications devices. *Id.* at 1:22–2:45 (describing various prior art assistive technologies to help characterize the evolution of assistive technologies). The '104 patent also summarizes the invention as the use of a speech recognition computer program trained to the voice of the call assistant to translate promptly the words spoken by an intermediary call assistant into a "high speed digital communication message [that] is then transmitted electronically promptly by telephone to a visual display accessible to the" hearing-assisted user. *Id.* at 2:53–60. Thus, we determine the pertinent art to be telecommunications systems, because any communications technology would be pertinent art to the '104 patent. Although assistive technology may be more pertinent, and assistive technology for the deaf and hearing impaired, using voice-to-text relays, may be most pertinent, anything in the telecommunications technology field would be pertinent to the inventor when considering his problem.

The qualifications of Mr. Occhiogrosso, as summarized in his curriculum vitae (Ex. 1020), qualify him to give expert testimony on the subject of telecommunication technologies. He possesses a Bachelor of Science in Electrical Engineering and a Master of Science in Electrical Engineering. Ex. 1020, 2. Mr. Occhiogrosso testifies that he has more than thirty years of experience in the field of telecommunications and information technology, and he has planned, designed, implemented, and managed large

scale projects involving wired and wireless communication systems, including transmission of voice and data. Ex. 1019 ¶ 7; *see also* Ex. 1020, 2–6 (detailing Mr. Occhiogrosso's enterprise consulting engagements, research and development, and wireless experience).

Moreover, to the extent Mr. Occhiogrosso is more familiar with general telecommunications technology and less familiar with voice-to-text or its application to the deaf or hearing-impaired, or to the extent that Mr. Occhiogrosso's testimony is inconsistent or unsupported, we weigh Mr. Occhiogrosso's testimony accordingly, taking into account the extent of his expertise in these areas. *See, e.g.*, *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (holding the Board has discretion to give more weight to one item of evidence over another "unless no reasonable trier of fact could have done so"); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.").

Patent Owner also contends that Mr. Occhiogrosso's testimony fails to identify the level of skill in the art in his declaration (Ex. 1019), fails to give any consideration to what one of ordinary skill in the art would have known or not known, is unsupported and unreliable, and does not consider secondary considerations. PO Mot. to Exc. 8; PO Resp. 9–10; PO Reply to Opp. to Mot. to Exc. 4. Petitioner counters that Mr. Occhiogrosso "consistently applied his definition of a [person of ordinary skill in the art] throughout his testimony" and, in a supplemental declaration, "made explicit the level of ordinary skill he applied" in his first declaration. Pet. Opp. to Mot. to Exc. 15.

Patent Owner's argument goes more to the weight we should accord Mr. Occhiogrosso's testimony, rather than its admissibility. It is within our discretion to assign the appropriate weight to the testimony offered by Mr. Occhiogrosso. *See, e.g., Yorkey*, 601 F.3d at 1284. Moreover, Mr. Occhiogrosso provided a supplemental declaration identifying the level of skill in the art and confirming his opinion presented in the earlier declaration in view of the level of skill in the art. *See* Ex. 1036 ¶¶ 12–17, 19. Mr. Occhiogrosso's testimony also confirmed his legal understanding of obviousness, including secondary considerations. *See id.* ¶¶ 20–25.

Under the totality of these circumstances, we decline to exclude the testimony of Mr. Occhiogrosso. Accordingly, Patent Owner's Motion to Exclude Mr. Occhiogrosso's testimony is *denied*.

D. Asserted Ground of Obviousness over Ryan and McLaughlin

Petitioner contends that claims 1 and 2 are unpatentable under 35 U.S.C. § 103(a) as obvious over Ryan and McLaughlin, relying on declaration testimony of Mr. Occhiogrosso. Pet. 23–33 (citing Ex. 1019). Patent Owner responds, relying on declaration testimony of Mr. Steel and Mr. Ludwick. PO Resp. 17–57 (citing Exs. 2001, 2003). Having considered the parties' contentions and supporting evidence, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 2 are unpatentable for obviousness over Ryan and McLaughlin.

1. Summary of Ryan

Ryan describes a relay interface system for communication between a standard telephone set used by a hearing user and a TDD used by a hearing-impaired person. Ex. 1005, Abstract, 1:6–10. Figure 1 of Ryan is set forth below:

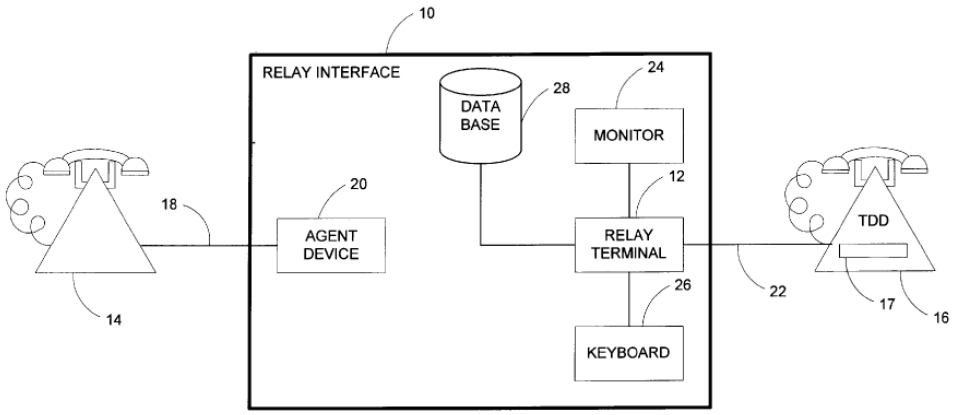

FIG. 1

As shown in Figure 1, Ryan's relay interface 10 includes operator/relay terminal 12 and connects standard telephone set 14 with TDD 16 having associated display 17. *Id.* at 3:43–48. Telecommunications link 18 connects telephone 14 with relay interface 10 through agent device 20, and telecommunications link 22 connects TDD 16 with relay interface 10 through relay terminal 12. *Id.* at 3:48–52. An operator or relay agent typically is responsible for manipulating relay terminal 12 using keyboard 26 to relay messages between telephone 14 and TDD 16. *Id.* at 4:19–21. Ryan indicates, however, that speech recognition software could be used to automate the relay function so that an operator or relay agent would not be required. *Id.* at 4:21–24. Ryan specifically describes using speech recognition software at agent device 20 to interpret a voice message from a caller at telephone 14 and convert the message from a voice format to a data format. *Id.* at 4:24–27. Ryan further indicates:

> If the software is specifically designed to recognize the voice of particular relay agents, the accuracy of the relay service may be improved by having one of these agents listen to the caller and repeat the voice message into a terminal adapted to convert the agent's voice message into a data message.

Id. at 4:33–38.

2. Summary of McLaughlin

McLaughlin describes a simultaneous voice and data (SVD) modem used in connection with a relay service in which an operator mediates communications between a hearing person and a hearing-impaired person. Ex. 1012, 30:13–31:63. In one embodiment described in McLaughlin, the hearing-impaired user has an answering device or system, comprising two SVD modems, connected to two communication links, Line A and Line B. *Id.* at 30:59–63, 32:17–19. These communication links may use local area network (LAN), wide area network (WAN), or Internet communications over analog lines or digital lines, such as Integrated Services Digital Network (ISDN) or digital subscriber line (DSL) technology. *Id.* at 30:46–53. When a voice call from the hearing user arrives on Line A, the answering device sets up an SVD link with the relay service on Line B. *Id.* at 31:35–40. Voice sounds received from the hearing user on Line A are sent to the relay operator on Line B. *Id.* at 31:41–43. The relay operator translates the voice sounds into text, which is sent over Line B to appear on the screen of the hearing-impaired user's answering device. *Id.* at 31:43–47. The hearing-impaired user also types responses back to the relay operator over Line B. *Id.* at 31:47–49. The relay operator voices the text, and the relay operator's voice sounds are carried on Line B to the hearing-impaired user's answering device and passed over to Line A to be heard by the hearing user. *Id.* at 31:49–52. Conversation among all three parties is "full duplex," so that all parties may talk or type simultaneously. *Id.* at 31:55–62.

3. Claims 1 and 2

Claim 1 is directed to a relay system using a call assistant for facilitating communication between a hearing user and an assisted user. The claim recites (i) a relay with voice recognition software trained to the voice of the call assistant to translate words spoken by the call assistant into a digital text stream, (ii) a captioned telephone device within sight of the assisted user, including a display visible to the assisted user, (iii) communication connections between the hearing user and relay and between the assisted user and relay, which may be wired, wireless, or Internet connections, and (iv) the system connected so that if the call assistant repeats (i.e., re-voices) the words spoken by the hearing user, the digital text stream created by the relay appears on the display of the captioned telephone device. Claim 2 is similar, but with a captioned telephone device "at the location of the assisted user" and Internet Protocol connections between the hearing user and relay and between the assisted user and relay.

Petitioner asserts that Ryan teaches the relay and re-voicing limitations, relying on Ryan's relay interface system in which a relay agent is responsible for relaying messages between phone 14 and TDD 16. Pet. 24, 28–30, 32–33 (citing Ex. 1005, 4:19–38). Specifically, Petitioner relies on Ryan's description of "speech recognition software . . . employed at [relay agent] device 20 [and] specifically designed to recognize the voice of particular relay agents" and Ryan's indication that "the accuracy of the relay service may be improved by having one of these agents listen to the caller and repeat the voice message into a terminal adapted to convert the agent's voice message into a data message." *Id.* (citing Ex. 1005, 4:19–38).

Petitioner also asserts that Ryan teaches wired communication connections. Pet. 27 (citing Ex. 1005, 1:14–18, 3:43–52).

For the captioned telephone device limitations, Petitioner relies on McLaughlin's description of an assisted user's answering device that receives voice sounds from a hearing user on Line A, transmits those sounds to the relay operator on Line B, and receives text from the relay operator on Line B to be displayed on the answering device's screen. Pet. 26, 31 (citing Ex. 1012, 31:41–62). Petitioner also asserts that McLaughlin teaches the use of Internet or IP connections. Pet. 27, 32 (citing Ex. 1012, 1:31–36, 30:46–53).

We find that Petitioner has shown by a preponderance of the evidence that the combination of Ryan and McLaughlin teaches all the claim limitations and has articulated sufficient reasoning for combining the references. For the reasons explained below, we are not persuaded by Patent Owner's arguments to the contrary. *See* PO Resp. 19–55.

a. "captioned telephone device"

Patent Owner argues that McLaughlin does not teach a captioned telephone device because (i) McLaughlin's answering device does not play audio of the remote user's voice to the assisted user, and (ii) McLaughlin does not teach a device located at an assisted user's station that performs all the functions of a captioned telephone device. PO Resp. 21–25. We find Patent Owner's arguments unpersuasive. First, the claim language does not require providing audio of the remote user's voice to the assisted user. Similarly, our construction of "captioned telephone device" only requires a device that receives and transmits voice signals, not one that makes the received voice signals audible to the assisted user. *See supra* II.A.1.

Second, McLaughlin teaches an answering device that receives voice on Line A and transmits voice and receives text on line B using SVD modems, and also includes a screen for displaying text to a hearing-impaired user, thereby meeting the requirements of a captioned telephone device as we have construed the term. Ex. 1012, 30:46–48, 30:59–63, 31:41–47; 32:41–52. On this point, based on our review of McLaughlin, we credit the testimony of Petitioner's declarant, Mr. Occhiogrosso, over that of Patent Owner's declarant, Mr. Steel. *See* Ex. 1036 ¶¶ 28–38; Ex. 2001 ¶¶ 25–27.

b. "voice recognition software trained to the voice of the call assistant"

Patent Owner contends that Ryan does not disclose a relay with "voice recognition software *trained* to the voice of the call assistant" because Ryan's software is "designed" to recognize the voice of particular relay agents. PO Resp. 26–28. According to Patent Owner, software *designed* in advance of implementation at the source code level is not the same as *trained* software. *Id.* at 27. As discussed previously, *see supra* II.A.2, we do not agree with Patent Owner that trained voice recognition software, as recited in the claims, precludes software that is trained during the design phase, which Patent Owner contends is disclosed by Ryan. *See* PO Resp. 27. Thus, we are not persuaded by Patent Owner's argument, which is premised on an incorrect claim construction. Moreover, Patent Owner relies on testimony from Mr. Steel and Mr. Ludwick, which we do not find persuasive because it is grounded in the state of the art in 1994, *see id.* at 27–28 (citing Ex. 2001 ¶ 32; Ex. 2003 ¶¶ 19, 21–26), rather than at the

time of invention of the '104 patent, which is no earlier than 2001, the filing date of related U.S. Patent No. 6,594,346.[7] *See* Pet. 6–10; Reply 3.

Next, relying on Mr. Ludwick's testimony, Patent Owner contends that Ryan does not disclose the recited "voice recognition software trained to the voice of the call assistant," because Ryan's "voice recognition software is written specifically to recognize the voices of a collection or group of people, rather than a particular, individual call assistant." PO Resp. 29 (citing Ex. 2003 ¶ 19). For the reasons discussed previously, we do not agree that the claim language is limited to voice recognition software trained to one, and only one, call assistant. *See supra* II.A.2. Thus, even if Ryan's software is trained to recognize the voices of a group of people rather than an individual call assistant, we are not persuaded by Patent Owner's argument, which is premised on an incorrect claim construction.

Patent Owner also contends that, at most, Ryan is ambiguous as to the disclosure of a call assistant re-voicing the words spoken by the remote user into a computer to create a text stream of those words. PO Resp. 30–38. In particular, Patent Owner contends that Ryan discloses a relay agent using re-voicing as an error correction mechanism for individual, unrecognized letters of a word. *Id.* at 32–38; *see* Ex. 1005, Abstract. We do not read Ryan's disclosure so narrowly. *See* Ex. 1005, 4:19–38.

Ryan's technology is intended to "overcome[] the problem associated with existing telecommunications relay services by providing a system and method for correcting mistakes before the message is displayed at the end user's TDD." *Id.* at 2:35–38 (Summary of the Invention). Ryan describes ways to do so using speech recognition software. *Id.* at 4:19–38. One way

[7] The '346 patent is the subject of related IPR2013-00545.

is automating the relay function so as to eliminate the need for a human operator. *Id.* at 4:19–24. Ryan describes using speech recognition software to convert the voice message from a caller to text "while providing an error correction feature for words not recognized by the software." *Id.* at 4:24–28. Ryan further describes the error correction feature as having two forms—phonetic spelling of the unrecognized word by the speech recognition software or prompting the caller to spell the unrecognized word. *Id.* at 4:29–33.

Ryan describes another way to improve the accuracy of a relay system before the text is displayed at the TDD—if the speech recognition software is designed specifically to recognize the voice of particular relay agents, a relay agent "listen[s] to the caller and repeat[s] the voice message into a terminal adapted to convert the agent's voice message into a data message." *Id.* at 4:33–38. In contrast to Ryan's description of the error correction by the *caller* spelling letters of an unrecognized word, here Ryan unambiguously describes a call agent repeating the voice message of the caller and using speech recognition software designed specifically to recognize the voice of the relay agent to convert the agent's voice message into a data message.

Finally, we are not persuaded by Patent Owner's argument that Ryan must be read narrowly in view of the state of the telecommunications relay art in 1994, the effective filing date of Ryan. *See* PO Resp. 38–41. A proper obviousness analysis considers the prior art from the perspective of a person having ordinary skill in the art at the time of the invention, which in this case is no earlier than 2001. *See* 35 U.S.C. § 103(a); Pet. 6–10; Reply 3. As Petitioner indicates, a person of ordinary skill in the art in 2001 would have

had in his possession related U.S. Patent No. 5,909,482 ("the '482 patent"), filed in 1997.[8] Reply 11. The '482 patent expressly discloses the use of a commercial software package, Dragon Naturally Speaking, for re-voicing a remote user's voice into voice recognition software trained to the voice of a call assistant. Ex. 1003, 5:50–57; *see* Reply 10. With this background, a person of ordinary skill in the art in 2001 would have viewed Ryan as teaching voice recognition software trained to the voice of the call assistant.

c. Reasons to Combine Ryan and McLaughlin

Petitioner also has articulated sufficient reasoning with some rational underpinning to support the legal conclusion that the subject matter of the claims would have been obvious to one of ordinary skill in the art in view of the teachings of Ryan and McLaughlin as combined in the manner proposed by Petitioner. *See KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); Pet. 23 (citing Ex. 1019 ¶¶ 28–29); Reply 11–13 (citing Ex. 1036 ¶¶ 53–55). McLaughlin teaches a captioned telephone device configured to connect to a relay. McLaughlin, however, does not teach re-voicing the remote user's words at the relay using voice recognition software trained to the voice of the call assistant, as recited in the claims. Instead, McLaughlin describes a relay service with a call assistant, but also indicates that a relay may use automated equipment. Ex. 1012, 29:20–22. Ryan teaches using speech recognition software to automate the relay function, but further teaches that the accuracy of the relay may be improved if a call assistant re-voices the remote user's words into voice recognition software designed to recognize the call assistant's voice. Ex. 1005, 4:33–38.

[8] The '482 patent is the subject of related IPR2013-00541.

We are persuaded that a person of ordinary skill in the art would have looked to Ryan for ways to automate the relay function in McLaughlin's system and would have recognized that Ryan's intermediate re-voicing solution—using voice recognition software trained to the call assistant's voice—would perform better than speaker-independent voice recognition applied directly to the remote user's voice. *See* Ex. 1036 ¶ 55.

Patent Owner contends that one of ordinary skill in the art would not have considered Ryan when developing the relay system of the '104 patent "because the bulk of the disclosure of Ryan was nothing more than the known TDD architecture." PO Resp. 49–51. Patent Owner also contends that one of ordinary skill would not have considered McLaughlin because its system requires use of specialized modems and it discloses connecting to a traditional relay, not a relay with voice recognition. *Id.* at 52–53. These arguments focus on isolated teachings of the references, rather than whether the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art in view of the combined teachings of the references. *See* 35 U.S.C. § 103(a); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). As discussed, we are persuaded that a person of ordinary skill in the art would have combined the teachings of Ryan and McLaughlin in the manner proposed by Petitioner.

Patent Owner also argues that McLaughlin teaches away from the use of trained voice recognition software. PO Resp. 54–55. In particular, Patent Owner submits that McLaughlin explains the shortcomings of automated speech recognition technology. *Id.* at 54 (citing Ex. 1012, 26:54–62). McLaughlin's statement, however, involves the application of speech recognition to voice messages left by callers, not voice recognition software

trained to the voice of a call assistant, i.e., speaker-dependent voice recognition. McLaughlin, therefore, does not criticize, discredit, or discourage the combination of Ryan's re-voicing technique with McLaughlin's system. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

4. Secondary Considerations

Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham*, 383 U.S. at 17–18. Notwithstanding what the teachings of the prior art would have suggested to one with ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the challenged claims would not have been obvious to one with ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17; *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

To be relevant, evidence of nonobviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). Thus, to be accorded substantial weight, there must be a nexus between the merits of the claimed invention and the evidence of secondary considerations. *GPAC*, 57 F.3d at 1580. "Nexus" is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing*

Ltd., 851 F.2d 1387, 1392 (Fed. Cir. 1988). The burden of showing that there is a nexus lies with the Patent Owner. *Id.*; *Paulsen*, 30 F.3d at 1482.

Patent Owner alleges "substantial praise for the inventions claimed in [Patent Owner's] patents, including the '104 Patent, the long-felt but unresolved need of the deaf and hard of hearing community, the commercial success of the products and services embodying the invention, and the failure of others to provide a relay service or other solution that provided the benefits of the claimed inventions." PO Resp. 56. For support, Patent Owner proffers declarations by Ms. Brenda Battat (Ex. 2006) and Ms. Constance Phelps (Ex. 2007) describing general innovations of Patent Owner's CapTel Service and its CapTel phone and their benefits to the deaf and hard of hearing community. PO Resp. 56–57. In an attempt to establish the requisite nexus, Patent Owner relies on a declaration of Mr. Ludwick (Ex. 2004) asserting that his expert declaration "explain[s], on a feature by feature basis, the nexus between those secondary considerations and the claimed design" and "illustrates, in chart form, that the CapTel system and various models of CapTel phones embody the claims of the present invention." PO Resp. 56–57.

Patent Owner's Response contains no substantive arguments. *Id.* at 55–57. Instead, Patent Owner merely lists various common forms of secondary considerations evidence, without exposition. This does not provide sufficient analysis for us to determine whether Patent Owner has provided adequate evidence of secondary considerations and a nexus between any such evidence and the merits of the claimed invention. Thus, Patent Owner's broad contentions regarding secondary considerations in its Patent Owner Response do not demonstrate nonobviousness.

Moreover, Patent Owner's declarations fail to establish a nexus between the merits of the claimed invention and the evidence of secondary considerations. To show a nexus, Patent Owner relies on Mr. Ludwick's declaration, which describes his visit to CapTel, Inc.'s relay center in Madison, Wisconsin. Ex. 2004 ¶ 54. Mr. Ludwick's chart presents his conclusions based on personal observation that the CapTel Service meets each claim limitation of the '104 patent. Ex. 2004 ¶ 55 (pp. 47–50). For example, regarding "the system connected such that if the call assistant repeats the words spoken by the hearing user, the digital text stream created by the relay causes the words spoken by the hearing user to appear on the display of the captioned telephone device," recited in claim 1, Mr. Ludwick asserts:

> I personally observed that the CapTel Service meets this claim element. During my visit to the CapTel relay, I saw call assistants repeat hearing user's words, which resulted in captions displaying on CapTel Phones. This aspect of the relay system is included when the Service is used with each of the CapTel Phones and has always been included as part of the CapTel Service.

Ex. 2004 ¶ 55 (p. 48).

Because Mr. Ludwick's conclusions are based on personal observations, without sufficient supporting facts or data, his testimony has little probative value. *See Am. Acad. of Sci.*, 367 F.3d at 1368 ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations."); *see also* Fed. R. Evid. 702 (providing one may testify in the form of an opinion if the testimony is based on sufficient facts or data). As such, Mr. Ludwick's conclusory assertions do not provide a sufficient

connection between objective evidence and the claimed invention, and so do not establish the requisite nexus between the merits of the claimed invention and the evidence of secondary considerations.

Accordingly, Patent Owner fails to provide sufficient credible evidence to support its allegations of nonobviousness based on secondary considerations. When we balance Petitioner's evidence of obviousness against Patent Owner's asserted objective evidence of nonobviousness, we determine that a preponderance of the evidence supports Petitioner's position that claims 1 and 2 would have been obvious over Ryan and McLaughlin.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1 and 2 of the '104 patent are unpatentable under 35 U.S.C. § 103(a) for obviousness over Ryan and McLaughlin.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1 and 2 of U.S. Patent No. 7,555,104 B2 are unpatentable; and

FURTHER ORDERED that Patent Owner's Motion to Exclude Mr. Occhiogrosso's testimony is *denied*.

This is a final 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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