IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAPTIONCALL, LLC and
SORENSON COMMUNICATIONS, INC.
Petitioners

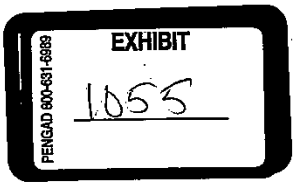
v.

ULTRATEC, INC.,
Patent Owner

IPR2015-00637
Patent No. 8,908,838

DECLARATION OF IVAN ZATKOVICH

Submitted Electronically Via PRPS



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I. INTRODUCTION

1. My name is Ivan Zatkovich. I have been retained by counsel as an expert for Patent Owner Ultratec, Inc. ("Ultratec" or "Patent Owner") in a series of related *inter partes* review proceedings before the Patent Trial and Appeal Board (the "Board"), including the instant matter, *CaptionCall, LLC v. Ultratec, Inc.*, IPR2015-00636 ("the '838 IPR").

2. This declaration is intended to supplement the declaration I submitted on or about November 23, 2015 in connection with the '838 IPR ('838 IPR, Paper 2013).

II. QUALFICATIONS

3. I received a Bachelor's degree in Computer Science, with a minor in Electrical Engineering Digital Circuit Design, from the University of Pittsburgh in 1980. I completed a Master's thesis in Computer Networks. Byte Magazine published a portion of the results from my Master's thesis. My curriculum vitae (Ex. 1003) includes information regarding my professional career.

4. I have over thirty years of experience in telecommunications, Internet, and communication networks. For at least 12 years, my work focused on technology related to communications such as: Computer Telephony Integration (CTI), call routing, call relay speech recognition, text to speech and operator assist speech recognition, audio source synchronization, telecom systems integration,

telecom billing systems, telephone carrier networks including traditional public switched telephone networks (PSTN), wireless, and Voice-over-Internet Protocol (VoIP) methodologies. I also have experience with multiparty videoconferencing, conferencing and message protocols, including H.323 and SIP, and network security services, including firewall and virtual private networks (VPNs).

5. Currently, I am the Principal Consultant of eComp Consultants, a position I have held for over 15 years. eComp Consultants provides professional intellectual property consulting in the fields of telecommunications, web publishing, eCommerce, computer related telephony, and network communications. Such consulting services include working with clients on specific information technology projects, process improvement, project management and other technology issues, as well as providing professional expert witness services.

6. I have consulted for companies such as Verizon, Deustche Telekom, PTT Netherlands, Bell Canada, Qwest Communications, McGraw-Hill, Apple, and Facebook. For these companies I provided consultation on Telecommunications, Internet, and eCommerce technology, including CTI with specific project consulting for Contact Center management, video conferencing, and integration of PBX, IVR, ACD, VoIP, and Unified Messaging technology. I have also implemented contact centers for large eCommerce implementations (GEICO),

Customer service implementations (Verizon), and customer support implementations (Utility Partners).

7. From 1980 to 1987, I was employed as a Software Engineer for Digital Equipment Corporation, a leading vendor of computer systems, including computers, software and peripherals, where I developed telephone management systems for an early CTI and computer command system.

8. From 1987 to 1996, I was employed as a Project Manager of Telecom Software at GTE Data Services, an eight billion dollar telecommunications company, which was the predecessor to Verizon. During my employment at GTE Data Services, I developed Telephone Switch Management and Service Provisioning software, and implemented: teleconference systems for hands free operation, multiple microphones and audio sources, and combining and filtering audio feedback; routing & switching services within a network; and early VoIP gateway prototypes for Integrated Services Digital Network ("ISDN") to Internet telephone services.

9. From 1999 to 2002, I was employed as an eBusiness Engagement Manager at Tanning Technology and IMRGlobal, an international systems integrator specializing in network infrastructure and channel integration for financial markets and the insurance industry. During my employment at Tanning Technology, I developed Integrated VoIP contact centers to cross-utilize call center

agents for simultaneous telephone, Interactive Voice Response ("IVR"), chat room, and eMail support.

10. My related profession experience:

- **eComp Consultants.** Designed Mesh Network applications for dynamic routing of data messages.
- **Verizon.** Call Center design and development.
  - Implementation of teleconference systems for hands free operation, multiple microphones and audio sources, combining and filtering audio feedback.
  - Routing & Switching services within the Telco network including: IVR call flows and Automatic Call routing based on ANI, DNIS, or dialed digits.
- **GEICO.** Managed the development of Integrated IVR and Web call center call routing for cross-utilize call center agents for simultaneous IVR response, Chat room response, and eMail response.
- **Digital Equipment Corporation.** Developed TMS, (Telephone management system) for an early Computer Telephony Interface (CTI) and computer command system.

11. My related case experience:

- **Nuance Communications v. TellMe Networks (Microsoft).** Patent Litigation Provided expertise in automated call processing/routing, speech recognition, and call relay to operator assisted speech to text translation using 'whisper mode'.
- **Bear Creek Technologies vs. Verizon Business - Patent Litigation.** Testifying expert for Infringement providing expertise on Call Routing and Setup protocol (inc. provision of off hook, ring back, and busy signals).
- **Parus v. Airtran – Patent Litigation.** Testifying expert in Natural Language command parsing and recognition. System converted voice commands into a Command Line Interface using XML command and parameter sequences.
- **Ronald A. Katz v. Echostar, Cox Communication, DHL Express, Fifth Third Bank.** Testifying expert for 4 defendants. Patent Litigation for Call Center Routing. Testifying expert providing expertise in Call Center call routing, Central Office switching, VoIP work around services.

12. By virtue of the above experience, I have gained a detailed understanding of the technology that is at issue in this petition. In addition, my

experience with telecom systems integration and telephone carrier networks, including traditional PSTNs, wireless, and VoIP methodologies, are relevant to the subject matter of the '838 patent.

13. I am being compensated for my time at my customary rate. I am being paid for my time, regardless of the facts I know or discover and regardless of the conclusions or opinions that I reach and express. I have no financial interest in the outcome of this proceeding.

14. Except as otherwise stated, I have personal knowledge of the facts stated in this Declaration, and I have formed the opinions expressed in this Declaration based on my expertise, experience, and information that I have reviewed.

III. MATERIALS CONSIDERED

15. The following is a list of materials I have considered when preparing this declaration.

- U.S. Patent No. 8,908,838 ("'838 Patent") (Exhibit 1001)
- Petition for Inter partes Review (Paper 1)
- Patent Owner's Preliminary Response (Paper 6)
- Decision granting institution (Paper 8)
- Supplemental Occhiogrosso Declaration re: '838 IPR (Exhibit 1019)

- Prosecution History of the '838 Patent (Exhibit 1017)
- November 13, 2015 Deposition Transcript of Benedict J. Occhiogrosso (Exhibit 2018)
- July 20, 2005 Order in the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Federal Communicaitons Commission, FCC 05-141.
- Federal Communications Commission News, Commission Clarifies that Two-Line Captioned Telephone Service is Eligible for Compensation from the Interstate TRS Fund, July 14, 2005, DOC-259989A1.
- Patent Owners Contingent Motion to Amend '838 Patent (Paper 16)
- Opposition to Patent Owner's Contingent Motion to Amend (Paper 24)
- March 4, 2016 Deposition Transcript of Benedict J. Occhiogrosso (Exhibit 2093)
- Supplemental Declaration of Benedict J Occhiogrosso (Exhibit 1019)
- Cited Prior art

- References Cited in my Nov. 23, 2015 Declaration (Exhibit 2013)
- March 11, 2016 Supplemental Declaration of Paul Ludwick
- The documents cited herein.

IV. ULTIMATE OPINION

16. It is my opinion that the proposed amended claims of the '838 Patent are valid and non-obvious over all of the prior art references and combinations cited by the Petitioner. Furthermore, it is my opinion that the prior art does not disclose each of the limitations of the proposed amended claims of the '838 Patent (either individually, or in any specific combination or modification proposed by the Petitioner and Mr. Occhiogrosso) and that a person of ordinary skill in the art (POSA) would not be motivated to combine or modify the references in the manner claimed by the Petitioner and/or Mr. Occhiogrosso.

17. It is my understanding that the board will not reach the issue of the patentability of the amended claims unless and until it already has held that the original claims are invalid. It is for just such a scenario that I have prepared this Supplemental Declaration. Because I am assuming that the Board has rejected, in whole or in part, the opinions I expressed in my Original Declaration, this Declaration focuses solely on the claim limitations which are newly introduced in the amended claims.

V. SUPPLEMENTAL OPINIONS

A. Definiteness and Claim Construction

1. Definiteness and claim construction of "transparent."

18. It is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover a relay captioning service which is transparent to the hearing user. This is reflected in, at least, amended claim 31 which states (among other things) that:

> ". . . . wherein the captioned device processor is linked to the first communication link and the second communication link **such that use of the captioning service by the assisted user is transparent to the hearing person for both incoming and outgoing calls."**

Claim 31 (amended Claim 1) (Paper 16) (emphasis added).

19. As I explained in my Original Declaration, one aspect of the transparency of relay captioning service is that the service is provided in a way such that the service itself doesn't indicate to the hearing user that the relay is there, i.e., unless the hearing user is told the relay is there the hearing user won't even know the relay is present. (Exhibit 2013, ¶¶ 176–179.) Thus, the concept of "transparency" is more than just being able to direct dial on outgoing and incoming calls, instead transparency requires that there are no messages, sounds, or other indications that reveal to the hearing user that a relay is present.

20. Likewise—with the transparency capability—when the assisted user calls the hearing user, the assisted user calls the hearing user directly, and the hearing user answers as in any normal phone call. (Ex. 1001 at 7:47-56 ("The microcontroller also includes the capability to generate DTMF dialing tones and impress those tones on the telephone line **78** when it is time to dial the relay. Thus here the single PICT device **80** connects to two telephone lines. A call can be initiated or received by the assisted user in the same manner as with a conventional telephone, using only the first telephone line **64.** When the user wishes to invoke the captioning service, the assisted user presses a button, 97, on the PICT device **80** that causes the device to automatically dial the relay on the second telephone line **78.**")). Furthermore, with transparency, the hearing user and the assisted user can have a normal conversation without the awkwardness and sense of lack of privacy associated with the presence of a third party (the call assistant) on the call. (*Id.* at 7:64-67). The assisted user can activate the relay service at any time before or during the call, and the hearing user is unaware that the assisted user has engaged the assistance of a relay station.

21. The '838 Patent discloses, and the proposed amended claims require, that the relay captioning service is transparent to the hearing user for both outgoing calls (from the assisted user to the hearing user) and incoming calls (from the hearing user to the assisted user), and discloses that the hearing user is not

necessarily aware that the relay is providing assistance on the call for both outgoing calls and incoming calls.

22. It is my understanding that Mr. Occhiogrosso has disagreed with my understanding of "transparent" as it is used in amended claim 31. In the context of telecommunications and telephone communications, to say that a service or operation is 'transparent' means that the service or operation operates in the background without giving an indication to the user that the service or operation is ongoing. In other words, a 'transparent' service is not noticed by the user.

23. Mr. Occhiogrosso claims that my construction of "transparent" is too narrow and proposes that "transparent" just means that when the hearing user calls the assisted user, the assisted user can invoke captioning without involving the hearing user. (Exhibit 1019, ¶54.) This construction, which focuses only on incoming calls, completely ignores transparency as it relates to outgoing calls. (The claim language reads "the captioning service is transparent to the hearing user, for both outgoing and incoming calls." (Claim 31 (amended claim 1).) Since transparency is required by the claim language for both incoming and outgoing calls, Mr. Occhiogrosso's construction cannot be correct.

24. Petitioner's citation to the declaration of Mr. Ludwick as support is incorrect. (*See* Paper 24 at 3.) In the cited declaration, Mr. Ludwick explains how the CapTel system is transparent in a way which is completely consistent with my

proposed construction and at odds with Mr. Occhiogrosso's. As explained by Mr. Ludwick, there is no indication given in the CapTel system that the relay is even present. (*See* Exhibit 2014, ¶¶ 35, 39, 45.)

25. Petitioner's proposed construction must also be incorrect because, according to Petitioner, using Petitioner's claim construction would result in the scope of the amended claims *being the same as the scope of the replaced claims.* *See* Paper 24 at 9 ("As found by the Board in association with the original claims, such as Claim 1, the combination of Liebermann, Engelke '405, and Mukherji teaches a two-line captioned telephone system where the assisted user can use an activator to initiate a captioning service over the second line without involvement of the hearing user on the first line. This is all that is required to demonstrate "transparency" under a proper construction of this term.")). Such a result completely reads out the specific amendment made to *add* the "transparent" language.

26. Petitioner and Mr. Occhiogrosso seem to be elevating one statement from the specification describing one aspect of the benefit of having transparency, over the actual language of the claims themselves. Reading the '838 Patent's specification as a whole, including in particular the discussion of the two-line captioned telephone embodiment, a person of ordinary skill in the art would understand that (1) the ability to allow "[t]he hearing user [to] dial to connect to the

assisted user as with any other telephone user, and (2) the ability for "[t]he assisted user to invoke[] the captioned telephone service without the need to involve the hearing user at all," are just some of the benefits of transparency. The patent contains a significant amount of additional discussion of the various aspects of having a "transparent" captioning service, *including the very next sentence* after those cited by Petitioner: "The service can be used equally well and transparently for both incoming and outgoing calls."

27. In reading a patent such as the '838 Patent which describes multiple aspects of how transparency is beneficial, a POSA would not fixate on one description of one aspect of transparency and ascribe definitional meaning to it. The specification simply states that one of the benefits of the transparency of the invention is that the hearing user does not need to *call,* or be involved in connecting to, the relay. This does not mean that a POSA would believe that is the *only* benefit and certainly not that this is the *definition* of transparent. It is my understanding that, during his deposition, even Petitioner's expert indicated that he did not agree with what Petitioner claims in its Opposition is the definition of transparency:

> Q. Let's then just start with paragraph 54. And I just want to clarify, the definition that you have used for what you refer to as the transparency limitation in Claim 31 is that a hearing user would dial the assisted user's phone number directly and the

assisted user can invoke captions without involving the hearing user; is that a fair summarization?

...

A. That's a fair summarization of the specification that -- the passages that appear in the '838 and that's, you know, where I went to attempt to define transparency back to the, you know, intrinsic evidence in the specifications. That's the use of the spec there.

Q. And that's the definition that you employed then later when you were talking about these obviousness combinations?

A. Yes, by and large, although I think under the broadest reasonable interpretation the definition could be more encompassing.

(Ex. 2093, March 4, 2016 Deposition of Benedict Occhiogrosso, 113:10–114:9).

28. Finally, as I noted above, claim 31 states that "***use*** of the captioning service by the assisted user is transparent to the hearing person." Petitioner's proposed analysis of transparency, in contrast, would rewrite this to be something more akin to "**connecting to** the captioning service **does not involve** the hearing person." The claims, in the broadest reasonable sense, contemplate that the whole use of the captioning service by the assisted user is transparent, not *just* the step of connecting to the captioning service.

2. ***Definiteness and construction of "without making the hearing person aware" limitation.***

29. As described above, it is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover that a relay captioning service can be provided during a call in such a way that the device itself does not cause the hearing user to become aware the captioning service is being used. This meaning is consistent with several passages from the specification of the '838 Patent, including for example: "None of the text data, and no digital carrier signals, are heard by either the hearing user or the assisted user. Normally the hearing user does not even need to be aware that captioning is being used on the call." (Ex. 1001 at 7:64-67).

30. Petitioner and Mr. Occhiogrosso attack the language in Amended Claim 36 which recites this feature ("without making the hearing person aware that captioning from the relay is being used.") Claim 36 states:

> ". . . and wherein the captioned device processor is further programmed to **provide the captioning service to the assisted user without making the hearing person aware that captioning from the relay is being used, for both incoming and outgoing calls."**

Claim 36 (amended Claim 17) (Paper 16) (emphasis added).

31. Mr. Occhiogrosso asserts that this element of claim 36 "is vague, and depends on the perceptiveness of different hearing users." (Exhibit 1019, ¶ 55.)

Mr. Occhiogrosso's analysis ignores the complete claim language—which clearly does not ask whether any one subjective user is aware of the relay; but instead that the relay service is provided in such a way that the hearing user is not aware of the captioning service. That is, the focus of the claim language is the structure of the relay—does the *relay* give away the fact that it is involved in the conversation? Whether or not a subjective hearer knows by some other method that a relay is involved is a complete *non sequitur*, based on what claim 36 actually states. Consistent with this, the specification indicates that "*Normally* the hearing user does not even *need* to be aware that captioning is being used on the call." (Exhibit 1001 at 7:65–67 (emphasis added).) In other words, this language contemplates that the hearing user may acquire actual awareness that captioning is being used from some circumstance beyond normal operation of the system (e.g., the assisted user simply states that captioning is being used, or gives some verbal cues), but that in "normal" operation, the device provides the captioning service in such a way that the hearing user does not *need* to know it is being provided.

32. Mr. Occhiogrosso goes on to speculate that the fact that Liebermann sends synthesized voice to the hearing user, does not mean that Liebermann is not transparent. According to Mr. Occhiogrosso, "the synthesized voice might be indistinguishable from [the] real user's voice." I disagree, and it is my opinion that no POSA in 2001 would ever believe that synthesized voice would be mistaken for

the voice of the actual assisted user. After reading Mr. Occhiogrosso's deposition testimony, it is clear that he does not believe it either:

> Q. Are you aware of a speech synthesis program that can be used for real-time conversations where someone would not be able to tell that a relay was being used?
> A. I haven't studied that particular question, but I would imagine based on my experience with voicemail that for short messages it might fly under the radar where you could -- where you didn't discern that it was synthesized. Obviously not a longer conversation and you are going to have interaction. So that's -- that's definitely -- you know, if you ask a question what's – you know, it might become more difficult with time.

(Exhibit 2093, 127:11-24.) In addition, Mr. Occhiogrosso's hypothetical synthesized voice shows that Mr. Occhiogrosso has misunderstood what is actually required by the claims. The claims do not center on whether a particular individual is capable of being fooled into believing he is not using a captioning system, instead the claims are directed towards whether the captioning system itself provides some indication that reveals its presence to the hearing user—such as a caller hearing synthesized voice instead of the assisted user's actual voice.

33. The specification further supports Patent Owner's and my understanding of claim 36 by providing numerous examples of instances in which some facet of the use of captioning is undertaken without the hearing user's

becoming aware. The '838 Patent describes that a hearing user would not be aware of a relay: (1) when the hearing user is not involved in connecting to the relay; (2) when the hearing user *connec*ts to the assisted user's device directly without the need to dial or be called by a relay; (3) when the hearing user does not receive text signals from the relay, even though the assisted user is receiving them; (4) when the hearing user does not hear or otherwise receive any data signals on the hearing user's their line during an ongoing captioning session; and (5) when the hearing user does not hear the call assistant ("CA") speaking during an ongoing call. Through these disclosures, a POSA would clearly be able to ascertain whether or not the recited claim language is met.

34. Furthermore, the language of claim 36 even further qualifies the "awareness" element by stating that it is only certain action taken by the processor that should not alert a user that captioning is being used. Specifically, the claim says that the device processor performs the act of providing the captioning service without making the hearing user aware. Thus, claim 36—contrary to all of Petitioner's assertions—is only concerned with whether the device goes through the process of providing the captioning service without performing an affirmative or overt action that would make the hearing user aware.

35. In sum, it is my opinion that a person of ordinary skill in the art would understand the objective boundaries of the "awareness" element of claim 36. In

particular, the '838 Patent describes ample circumstances of use of the claimed captioning service as well as how the service is connected and provided in those circumstances in ways that would not by necessity make the hearing user aware. These are sufficient for a POSA to understand the boundaries of the claim.

3. ***Definiteness and construction of "telephone line," "connector," and "IP connection."***

36. The explicit choice of the patentee to use telephone line and IP connection separately should not be ignored. (Exhibit 2013, ¶ 199.) Rather, the use of different language makes it clear and a POSA would understand that the patentee intended to claim two separate and distinct connection types. The explicit use of these separate and distinct terms makes it clear that a "portion of the bandwidth" of the same connection could not satisfy both the telephone line and the IP connection. This is further supported by the fact that there are two different "connectors" for the different communication links. This deliberate claiming of two different connectors and connections distinguishes the claim limitation over at least the cellular embodiment of Liebermann (which must be understood to have only a single wireless radio and, thus, only a single connection), and all of the disclosed embodiments of Mukherji.

37. In regard to *Liebermann's* cellular embodiment, I note that Mr. Occhiogrosso has agreed with me that the most plausible reading of that passage of *Liebermann* to a POSA would be that the cellular device has a single radio

connection, via a single antenna, not two separate communication paths. As I have previously noted in my Original Declaration, a POSA would not understand the cellular embodiment to be describing two separate connections, because that was simply not done at the time of the '838 Patent in the cellular industry.

38. In regard to *Mukherji*, I note that the system there is described as "establishing" a network connection as the first step in any call. (Mukherji at Figs. 4–6.) In operation, what that would mean to a POSA is that one computer establishes an IP-based communication session with another computer in something akin to a peer-to-peer connection. Packets of data (e.g., in an IP protocol manner) are being exchanged to maintain this session. Later, during the call, if (as Petitioner alleges) a need for text arises, a new communication session is not commenced. Rather, the two computers participating in the existing session simply exchange data signals so that both "understand," from a protocol standpoint, that text data will be added to the existing packet stream between them. (*See* Mukherji at 1:32–36; 5:29–46.)

*4. **Definiteness and construction of the "substantially simultaneously" limitation.***

39. While Mr. Occhiogrosso asserts that "'substantially simultaneously' is very vague" (Exhibit 1019, ¶¶ 59–62), I disagree. The claim language at issue here is "the transmitted text may be displayed substantially simultaneously with a broadcasting of the hearing user's voice signals…" That language clearly refers to

the assisted user receiving text at substantially the same time as the hearing user's voice. Any other construction would be nonsensical where the entire patent is clear that the text should be usable during an ongoing call to allow the captions to help the assisted user in understanding the voice of the hearing user.

40. Mr. Occhiogrosso's entire opinion that this language is "very vague" is based on his own attempts to convolute otherwise clear claim language. To inject such convolution into the clear langauge he claims "simultaneously" should merely require voice signals to be received at the same time as text regardless of any relationship between the text and the words being spoken. This reading completely ignores the entire specification which revolves around using captions to help the assisted user in understanding the voice of the hearing user.

41. Mr. Occhiogrosso explained that he believes "simultaneously" could mean that two signals are transmitted at the same time, without regard for synchronicity. He claims this is derived from the specification of the '842 Patent, which shares the same specification as the Engelke '405 patent. Those patents use the term "simultaneous" to refer to two signals that are "simultaneously" *transmitted* on the same line. That is not what is recited in the claims, however. The claims indicate that text is "displayed" on the user's captioned device so that the user can ***view*** them substantially simultaneously with "broadcast" of those words spoken by the hearing person. Moreover, the claims recite that the hearing

user's voice reaches the captioned telephone device via a separate line than the text data. The signals that are presented to the assisted user (the text and spoken voice) therefore do not exist simultaneously on the same line, contrary to what Petitioners assert and contrary to the cited discussion of the '842 and Engelke '405 patents. In short, the claims simply do not use the phrase "substantially simultaneously" in a way that could be reconciled with Mr. Occhiogrosso's proposed meaning.

42. Mr. Occhiogrosso goes on to claim that the modifier "substantially" makes this term vague and that the amount of synchronicity required would not be known to a POSA. I disagree. A POSA would understand that "substantially simultaneously" would, as described in the patent, mean a "very slight time delay," with the text display trailing the voice "slightly." (Exhibit 1002, 8:29–32; *see also Id.*, 2:38–45.)

43. Petitioner's and Mr. Occhiogrosso's position on "substantially" being indefinite is based entirely on unexplained and irrelevant hypothetical questions that Mr. Occhiogrosso presents. He conjectures that "a hard of hearing user calling 911 may ***desire*** *near instantaneous* captions," from which he concludes that "[t]o such a user, even a *small delay* may mean that the voice and text are not 'substantially' simultaneous." Whether that "might" happen and whether a user could detect a difference between "near instantaneous" and "substantially simultaneous" is unexplained and unsupported by any facts or data, as well as, in

the end, irrelevant. He also conjectures that "a user calling a friend or family member who is informed that a relay service is being engaged might tolerate much larger lag between voice and captions." (Ex. 1019, ¶ 61). This hypothetical is, again, without any underlying facts or data; and is also irrelevant. A POSA would not understand the claims to be addressing a user's ***preference***, what a user would ***tolerate***, or even a user's ***perception***. The claims simply regard the relationship between two measurable rates of transmission: the speed at which captions are being displayed and the speed at which spoken words are broadcast.

44. In addition, as Mr. Occhiogrosso acknowledged, the '482 Patent, was incorporated by reference into the '838 Patent. (Exhibit 1019, ¶ 60.) That patent recites that revoicing translates voice into text "at the speed of a normal human conversation," and that the rate of text generation of a revoicing relay is measurable against the rate of spoken words: "[e]xperience has shown that using currently available technology the delay between the time the hearing user speaks into the telephone 32 and the time the words appear on the display of the deaf user is a modest number of seconds." (Ex. 1004 at 6:60-64).

B. All of the Amended Claims of the '838 Patent Are Properly Supported by the Specification

1. Claim 31 has written description support.

45. Petitioner appears to argue (without any support from Mr. Occhiogrosso) that a disclosure of a "microcontroller" cannot provide support for

the claimed microprocessor. I disagree. It is my opinion that the disclosure of a microcontroller clearly provides support for the claimed microprocessor. A POSA would understand that a microcontroller is a single integrated circuit which contains a microprocessor core and memory. For purposes of the '838 Patent, and in the context of how "microcontroller" and "microprocessor" are used therein, these terms can be accepted as essentially synonymous. In practice, as of 2001, their known use to a POSA, particularly with respect to the types of functions described in the patent and recited in the claims, would have been the same.

46. Petitioner also appears to argue that the disclosed microcontroller of the captioned telephone device of the '838 Patent is not "linked to the first communication link." However, as illustrated in Figure 6 below, there *is* support for linking the microcontroller and the first communication link. For example, in Figure 6, the PICT device contains a microcontroller that is linked to a first communication link.

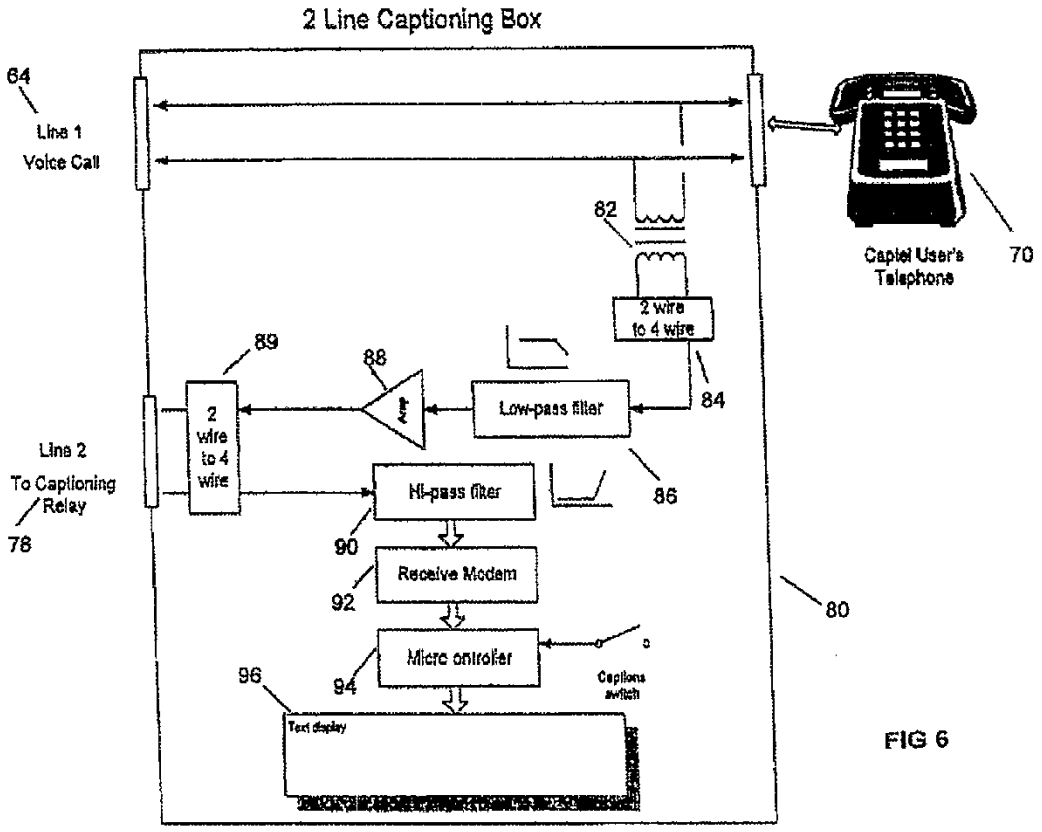


FIG 6

47. The '838 Patent explains that this PICT device 80 may be combined with a telephone to form a unitary captioned telephone device. And, to the extent the first connection is an IP connection, which the '838 Patent allows, the first conneciton would inherently need to be connected to the microcontroller in order for it the connection to operate. The microcontroller would need to control data packet transfer over that connection.

48. Furthermore, the way the microcontroller is linked to the first and second line in Figure 5 ensures that no signals from the second line are passed on

to the first line to be detected by the hearing user. Indeed, considering the schematic shown in Figure 5, there is no path for voice or data from line two to travel to line one. This complete segregation of all incoming signals on line two is a way of ensuring that the captioning service is "transparent" to the hearing user.

2. ***Claims 32 and 34 have written description support.***

49. The petitioner argues that claims 32 and 34 lack written support for two elements:

- **Limitation [C].** "the captioned device processor is further programmed not to initiate the IP connection to the relay to invoke the captioning service unless the assisted user has [activated/operated] the activator"; and
- **Limitation [D].** "wherein the captioned device processor is further programmed to, upon dialing by the assisted user but without the assisted user having selectively operated the activator, establish a telephone call solely using the telephone line, directly between the assisted user's captioned device and a conventional telephone device of the hearing person in the same manner as with a conventional telephone, such that the assisted user and hearing person can carry on a telephone conversation while the IP connection to the relay has not been established."

50. Reviewing the specification, the '838 Patent discloses that the microcontroller of the captioned telephone device generates DTMF tones to dial the relay on the second telephone line only when the user operates a switch or button to initiate captions:

> The microcontroller also includes the capability to generate DTMF dialing tones and impress those tones on the telephone line **78** when it is time to dial the relay. Thus here the single PICT device **80** connects to two telephone lines. A call can be initiated or received by the assisted user in the same manner as with a conventional telephone, using only the first telephone line **64.** When the user wishes to invoke the captioning service, the assisted user presses a button, 97, on the PICT device **80** that causes the device to automatically dial the relay on the second telephone line **78.**

('838 Patent at 7:46–56.)

51. This is exactly what is described by the claim language for limitation [C] and, as a result, it is my opinion that the specification supports limitation [C].

52. With respect to element [D] of claims 32 and 34, I also disagree with the Petition's argument. The '838 Patent discloses that the first and second telephone lines can be IP connections. *See* 8:65–9:3 ("The telephone line could be an analog or digital cellular telephone link or a PCS connection. The PICT device could also be connected to the internet communication in IP and in that event the

two telephone lines would simply be simultaneous digital data exchange with two remote locations."). It is my opinion that a POSA would understand that, for an IP connection, the processor of the captioned telephone device must be linked to the IP connection in order for the connection to operate.

3. ***Claims 33 and 35 have written description support.***

53. Petitioner also argues that element [F] of claims 33 and 35 lack written description support. This element is shown below:

- **Limitation [F].** "wherein the processor at the call assistant's workstation is further programmed not to send any voice signals from the call assistant to the captioned device"

54. Support for this limitation is plain from the specification. In particular, the '838 Patent explains that the "captioned telephone service" is provided through use of a revoicing relay. ('838 Patent at 6:26–28). The call assistant workstation of a revoicing relay sends only text to the assisted user and not any voice signals. (*See* Exhibit 1004 (the Engelke '482 patent, which is incorporated by reference into the '838 patent) at 6:53–60 (the CA workstation sends only text to the assisted user); 7:4–10 (the voice of the call assistant is used for two purposes, neither of which is to be sent to the assisted user)). To be clear, it is not my opinion that the "switch" of Engelke '482, discussed below, is written description support for this limitation. The switch toggles sending the call

assistant's voice to the voice recognition software and to the hearing user. The call assistant's workstation is programmed to use speech recognition software to *convert* the call assistant's voice into text, and only that text is sent to the hearing user. To put it simply, the portion of the call assistant's workstation that provides support for this limitation is that which places only text onto the line to the assisted user and does not pass the call assistant's voice on such line.

C. The transparency and awareness claims (claims 31 and 36) are patentable over the prior art

55. It is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover a relay captioning service which is transparent to the hearing user. This is reflected in, at least, amended claims 31 and 36 which were amended, to include the following language:

> " . . . wherein the captioned device processor is linked to the first communication link and the second communication link **such that use of the captioning service by the assisted user is transparent to the hearing person for both incoming and outgoing calls."**

Claim 31 (amended Claim 1) (Paper 16) (emphasis added).

> "The system of claim 12 wherein the relay is remote from each of the assisted user's captioned device and the hearing person and the captioned device processor is further programmed to maintain the second communication link directly between the relay and the captioned device and the first communication link

directly between the captioned device and the hearing user; and and **wherein the captioned device processor is further programmed to provide the captioning service to the assisted user without making the hearing person aware that captioning from the relay is being used, for both incoming and outgoing calls."**

Claim 36 (amended Claim 17) (Paper 16) (emphasis added).

56. One aspect of the transparency of relay captioning service is that the service is provided in a way such that the service itself doesn't indicate to the hearing user that the relay is there, i.e., unless the hearing user is told that the relay is there, the hearing user will not even know the relay is present. Thus, the concept of "transparency" is more than just being able to direct dial in outgoing calls and incoming calls, instead, transparency requires that there are no messages, sounds, or other indications that reveal to the hearing user that a relay is present.

57. Likewise—with the transparency capability—when the assisted user calls the hearing user, the assisted user calls the hearing user directly, and the hearing user answers as in any normal phone call. Furthermore, with transparency, the hearing user and the assisted user can have a normal conversation without the awkwardness and sense of lack of privacy associated with the presence of a third party (the call assistant) on the call. The assisted user can activate the relay service

at any time, before or during the call, and the hearing user is unaware that the assisted user has engaged the assistance of a relay station.

58. The '838 Patent discloses that the relay captioning service is transparent to the hearing user for both outgoing calls (from the assisted user to the hearing user) and incoming calls (from the hearing user to the assisted user), and discloses that the hearing user is not necessarily aware that the relay is providing assistance on the call for both outgoing calls and incoming calls.

1. ***No prior art individually teaches the transparency advantages of the claimed invention.***

59. I have reviewed the prior art in this case, and it is my opinion, as described more fully below, that none of the cited prior art references disclose transparency of relay captioning service to the hearing user.

a. ***Liebermann does not disclose transparency of relay captioning service to the hearing user.***

60. It is my opinion that Liebermann does not disclose transparency of relay captioning service to the hearing user.

61. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Supplemental Declaration provide no specificity about how Liebermann discloses this capability. Liebermann does not disclose that the relay captioning service is transparent to the hearing user for either outgoing calls or incoming calls.

Liebermann does not disclose that the hearing user is not aware that the relay is providing assistance on the call for either outgoing calls or incoming calls. To the contrary, Liebermann's system of sign language to natural language conversion and telephony configurations preclude transparency of the relay captioning service.

(1) *Liebermann's relay sends to the hearing user synthesized speech, which is not transparent.*

62. Liebermann sends to the hearing user synthesized speech corresponding to the assisted user's signs. Synthesized speech is unnatural and easily detectable, even in 2016, let alone in 2001. This fact was admitted by Mr. Occhiogrosso during his March 4, 106 deposition. (*See* Exhibit 2093, 127:2–24 ("Q. How about a synthesized voice . . . , wouldn't that indicate to the calling party that a relay was being used? A. Well, it depends on the nature of the synthesis. . . . I would imagine based on my experience with voicemail that for short messages it might fly under the radar . . . Obviously not a longer conversation and you are going to have interaction.").) Therefore, in Liebermann, the relay participation is not transparent to the hearing user, and the hearing user is fully aware of the relay's participation.

(2) *Liebermann's assisted user's signs undergo complex transformations, resulting in unnatural, machine-generated communication, which is not transparent.*

63. Additionally, in Liebermann, the assisted user's signs undergo multiple complex transformations from sign language into synthesized speech. First, the assisted user's signs are converted to digitized frames that are further converted to identifiers. Then, using artificial intelligence, these identifiers are correlated with and mapped to vocabulary and grammar. The correlated vocabulary and grammar are then are built into sentences of verbal text with syntactically appropriate language, again using artificial intelligence. Lastly, the verbal text is transformed into synthesized text and sent to the hearing user. This transformation process is imperfect and susceptible to errors and inaccuracies, producing not only synthetic voice but also synthetic, unnatural sounding language. As a result, in Liebermann, relay participation is not transparent to the hearing user, and the hearing user would be quite aware of the relay's participation.

64. Liebermann's lack of transparency to the hearing user is clear from Figure 1 of Liebermann, shown below, which depicts how the assisted user's signs undergo multiple complex transformations from sign language into synthesized speech.

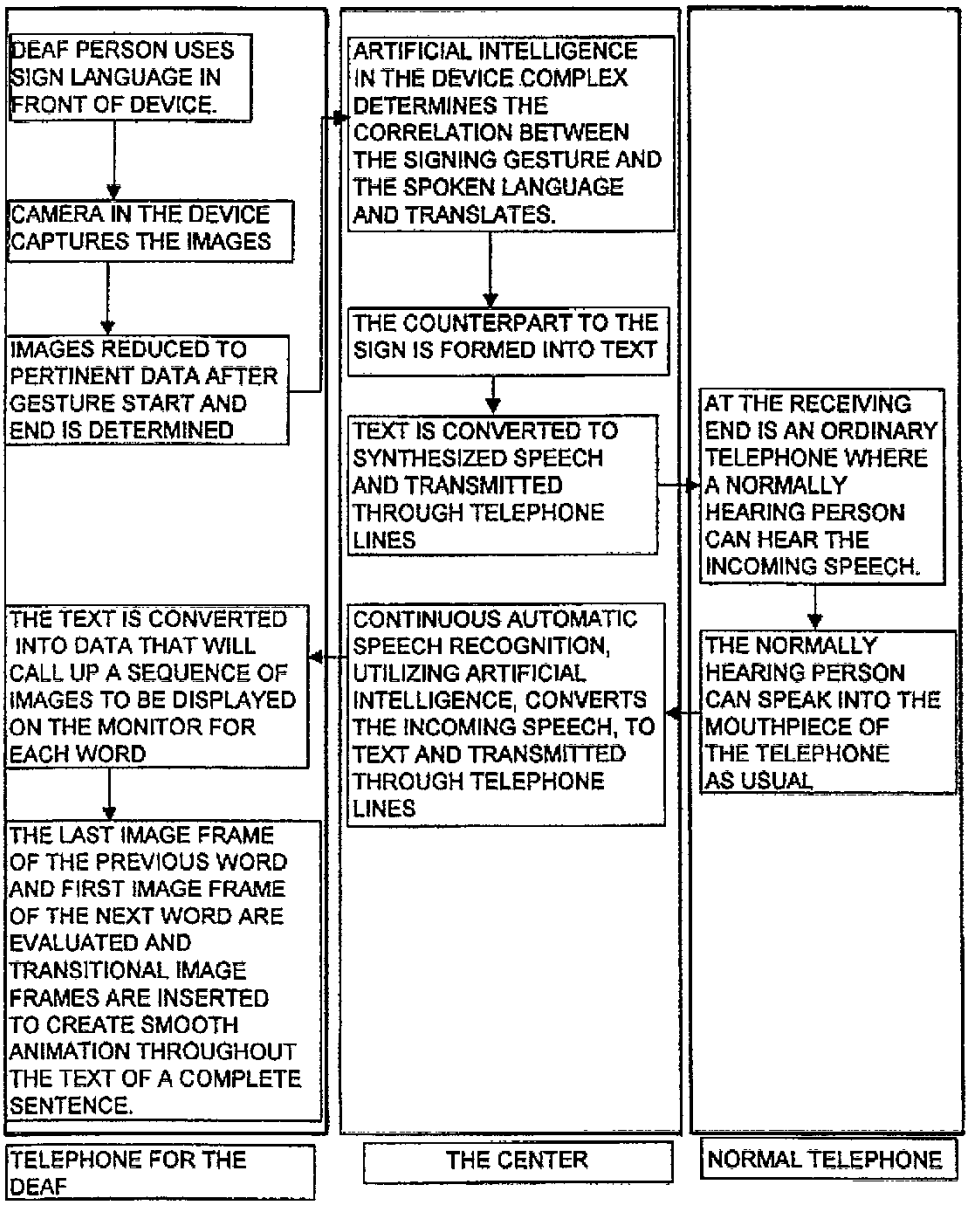


FIG. 1

65. Liebermann's lack of transparency to the hearing user, is also clear from the text of Liebermann, included below, which makes it clear that the both

users are very much aware that a relay (central processing facility) is being used. Indeed, the end result is a synthesized text which is sent to the hearing user, which as Mr. Occhiogrosso admitted, would make clear to the hearing user that a relay was being used.

> "Generally, the deaf person uses sign language in front of a device containing a video camera. The images captured by the camera at 20–30 frames/second are processed by a digital device which does initial and extended image processing. In the processing, each of the frames containing a captured image undergoes a process whereby the **image is transformed into manageable identifiers**. It is the set of identifiers, in the form of tables of numbers, that travels the normal telephone lines to the central processing facility (i.e., the Center). These identifiers, and not the images themselves, are then **correlated with a database of vocabulary and grammar** by using artificial intelligence at the Center. Subsequently, **syntax rebuilding occurs**, again **utilizing artificial intelligence**, resulting in a **complete verbal text which is equivalent to the signed language** content. The **text then undergoes a text-to-synthesized-speech transformation** and the speech is sent as an analog signal to any ordinary telephone utilized by a hearing person by existing copper or fiberoptic telephone lines."

(Liebermann at 4:60–5:11 (emphasis added)).

66. Liebermann concedes that sign recognition is inaccurate and technically difficult, stating:

> "sign language is a modified syntax of the spoken language, resulting in a smaller vocabulary and lessened ease of reading printed text as a whole (e.g. definite and indefinite articles ["the", "a", "an"] are omitted most of the time and **possessives and plurals are not usually distinguished**."

(Liebermann at 2:7–11 (emphasis added)).

> "A number of methods as to how to achieve **sign recognition** have been proposed in the literature. However, in spite of the apparent detail of such articles, they do not go beyond general suggestions, which fail when tested against the development of enabling technology. **Major problems have been impeding the success of such enabling technology**."

(Liebermann at 2:21–27 (emphasis added)).

67. As described above, based on my review of Liebermann, Liebermann does not disclose a relay transparent to the hearing user.

b. *McLaughlin does not disclose transparency of relay captioning service to the hearing user.*

68. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration provide no specificity about how McLaughlin discloses this capability. McLaughlin does not disclose that the relay

captioning service is transparent to the hearing user for either outgoing calls or incoming calls, and McLaughlin does not disclose that the hearing user is not aware that the relay is providing assistance on the call for either outgoing calls or incoming calls. To the contrary, McLaughlin precludes transparency of the relay captioning service.

69. For example, McLaughlin discloses that when the assisted user types, the relay call assistant voices the assisted user's text for the hearing user. In this case, the hearing user hears the voice of the call assistant. In other words, the relay captioning service is not transparent to the hearing user, and the hearing user is fully aware of the call assistant.

70. McLaughlin's lack of transparency is clear from the McLaughlin specification which recites that the operator voices what is typed by the deaf person:

> "For instance, if a hearing/speaking person wishes to talk to a deaf/speech impaired person, the relay operator will listen to the speaking person and type the words to the deaf person's TDD or modem. **If the speech impaired person types back, the relay operator voices this text to the hearing party**."

(McLaughlin at 29:22–27 (emphasis added)).

> "If the deaf user is speech impaired, the user may **type responses back to the relay operator who will then voice this text**. The voice sounds of the relay operator will travel on the

> SVD link on Line B to the answering system and pass over to the Line A and **so be heard by the voice caller on Line A**. In one presently preferred embodiment the relay operator and user will maintain split screen chat screens so that both may type at the same time. In this case, the *[sic]* converastion between all three parties is "full duplex." **The voice caller and the relay operator can hear each other and may each talk to each other simultaneously at any time.**"

(McLaughlin at 31:47–58 (emphasis added)).

> "If the deaf director types back, the translator or relay operator voices this text and these voice sounds are sent to the caller."

(McLaughlin at 33:47–49).

71. In yet one other McLaughlin embodiment using SVD (a configuration asserted by Petitioner for the two-line limitation), call establishment involves a multi-step process that involves the hearing user's interaction with the relay, such that the hearing user is aware of the relay even before the conversation begins, as described in the McLaughlin excerpt below. As a result, the relay captioning service is not transparent to the hearing user, and the hearing user is fully aware of the call assistant.

> "Suppose a hearing/speaking ("H/S") person wants to call a deaf person via telephone. The H/S person may not know that the person he is calling is deaf and might then call the deaf person's phone or phone extension directly. **The H/S person**

> **may not be familiar with a relay service, and may find it confusing, intimidating, or just too much work to learn how to use a relay service**. There is also the problem that once the H/S person has called a deaf person's phone or phone extension, **the deaf person's answering system must somehow detect that the caller is a voice caller and provide instructions to the H/S person** how to call the relay service and request that an operator dial the deaf person's phone again. This is an inconvenient procedure. In a larger organization, a H/S person may wish to speak to the director of a certain department, who may be deaf or speech impaired. **If this call is transferred directly to this director then the two parties cannot easily converse**."

(McLaughlin at 30:15–31 (emphasis added)).

72. For example, using the SVD configuration, the hearing user may be asked to say "voice," may be asked to press DTMF buttons, and may hear "please wait," before being informed to proceed. As a result, even before the conversation begins, the relay captioning service is not transparent to the hearing user, and the hearing user is fully aware of the call assistant. The McLaughlin excerpt below shows the call establishment steps (using the SVD configuration asserted by Petitioner for the two-line configuration), with step numbers added. In each of steps 2, 3, 4, 5, 8, and 9, the hearing user will realize the existence of a third-party relay service. As a result, the hearing user would be fully aware of the relay even

before the conversation begins, making the relay captioning service not transparent to the hearing user.

> "[Step 1] When an incoming call is received by Line A, the deaf and/or speech impaired person may decide that this line will handle one or several types of calls such as voice calls, data (text telephone) calls from TDDs or modems, or fax calls. [Step 2] If the deaf person wishes to support more than one type of incoming call on Line A, then some type of call discrimination is needed. Fax calls are usually easy to discriminate since most faxes support a "calling tone" that can be detected by the answering device. Unfortunately, **voice callers will typically not put any sounds on the line the answering system can detect**, nor do many data modems or TDDs. Accordingly, **some active interrogation is often needed to discriminate between data calls and voice calls**. [Step 3] If the deaf and/or speech impaired person wishes to support both data calls and voice calls on Line A, then in one configuration the call can be answered as follows. **The answering device on Line A goes "off hook" and answers the call**. A fax calling tone detector is activated and accepts a call from a fax if these tones are detected any time in the following procedures. [step 4] **The answering device may then place a recorded voice on the line asking a voice caller to make some response which can be detected. For instance, the answering device could ask the voice caller to say a word such as "voice" and then listen for this voice response. Or, the answering device could ask**

> **the voice caller to press a button on the voice caller's touch tone phone keypad and then listen for a DTMF tone response.** [Step 5] If a suitable voice, DTMF, or etc. response is elicited then the answering device will proceed to handle the voice call. If no response is elicited from a voice caller, then the answering system may then decide to try and **elicit a response from a calling standard modem or TDD by emitting the appropriate tones.** [Step 6] If a response was elicited from a voice caller, the deaf and/or speech impaired person could not talk or listen directly with this voice caller. If the call was answered under automated control, the answering system may verify that the deaf and/or speech impaired person is present and available to take the call, [Step 7] and the answering system can call out to a relay service on the second Line B. [Step 8] **The answering system may provide a "please wait" message to the voice caller on Line A.** In one presently preferred embodiment, the answering device will set up a SVD link with the relay service on Line B. [Step 9] **The voice caller will now be informed that the call can proceed.**"

(McLaughlin at 30:64–31:40 (emphasis added, step numbers added)).

73. I note that McLaughlin does not show how outgoing calls are processed. Therefore, it cannot be presumed to teach transparency or lack of hearing user awareness for outgoing calls. Even if one were to make assumptions about how outgoing calls were to take place, it would only be fair to assume that outgoing calls would require similar processes as incoming calls, involving the

hearing user with the relay, and making the relay not transparent to the hearing user.

74. Mr. Occhiogrosso admits that McLaughlin does not address transparency for outgoing calls (Ex. 1019, ¶85) and instead just says it would be obvious under Petitioner's construction. *Id.* While Mr. Occhiogrosso asserts that "a person of ordinary skill in the art would easily infer how outgoing calls would be placed from *McLaughlin's* disclosure," he does nothing to explain how a POSA would be motivated to have a system which performs outgoing calls in a *transparent* manner as required by the claim limitation. *Id.* Indeed, given that the incoming calls in McLaughlin are handled in a non-transparent manner with direct interaction between the hearing user and the relay, to the extent a POSA is motivated to do anything, a POSA would likely design a system wherein outgoing calls are handled in a similarly non-transparent manner.

75. As described above, based on my review of McLaughlin, McLaughlin does not disclose a relay transparent to the hearing user.

c. ***Mukherji does not disclose transparency of relay captioning service to the hearing user.***

76. It is my opinion that Mukherji does not disclose transparency of relay captioning service to the hearing user. (Exhibit 2013.)

77. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that while the Petitioner's

Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to halfheartedly argue that Mukherji could be combined with Liebermann or McLaughlin to disclose the claimed transparency limitation, there is no discussion of how Mukherji could cure the failings of Liebermann or McLaughlin discussed above. Despite this omission, I have reviewed Mukherji and it is my opinion that neither Mukherji alone nor Mukherji combined with Liebermann or McLaughlin would disclose that the relay captioning service is transparent to the hearing user for either outgoing calls or incoming calls, and neither Mukherji alone nor Mukherji combined with Liebermann or McLaughlin would disclose that the hearing user is not aware that the relay is providing assistance on the call for either outgoing calls or incoming calls.

78. In addition, Mukherji does not teach or even mention the existence of a relay. To the contrary, the descriptions and figures in Mukherji explicitly do not show any sort of relay:

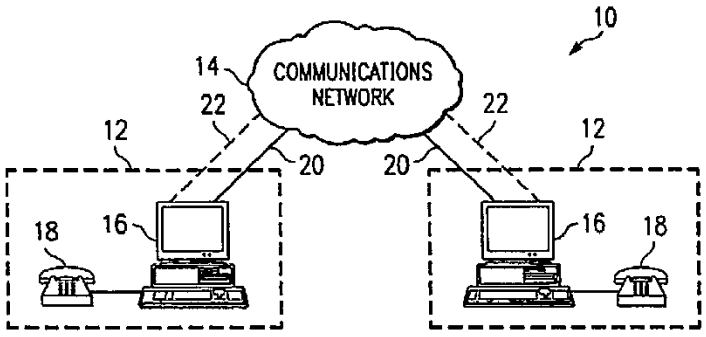


FIG. 1

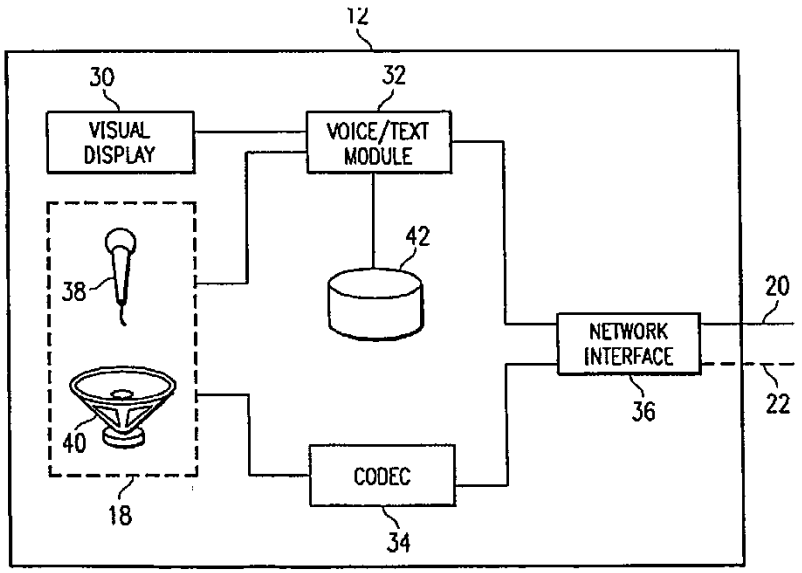


FIG. 2

79. Furthermore, Mukherji discloses that speech recognition takes place at the participants' computers, not at a relay.

> "Computing device 16 may use any appropriate speech recognition hardware and/or software for converting between voice and text. For example, **computing device 16 may operate using IP telephony software which contains speech recognition capabilities** or may interface packet-based communications software with commercially available speech recognition software."

(Mukherji at 3:35–41 (describing FIG. 2) (emphasis added)).

> "**Voice/text module 32 includes speech recognition** modules capable of converting voice information received using microphone 38 into text and then encoding the text into packets for communication using network interface 36."

(Mukherji at 4:9–12 (describing FIG. 2) (emphasis added)).

> "Memory 42 may store transcripts of current and previous communication sessions, communications applications, telephony applications, interface applications, speech synthesis applications, **speech recognition applications**, language translation applications, and other appropriate software and data."

(Mukherji 4:53–58 (describing FIG. 2) (emphasis added)).

80. Since there is no relay in Mukherji, no participating user can be aware of a non-existing relay. Moreover, to the extent the software being run in Mukherji at a remote user could be thought of in some applicable way to a remote relay, Mukherji still would not teach transparency. For the system in Mukherji to work, both parties to a conversation must be running the same software application on their computers (or other processing devices). That application and its user interface, as depicted in the figures of Mukherji, would reveal the presence of another user having such software. In other words, neither user would be unaware the other user is operating the same communnication software.

81. As described above, based on my review of Mukherji, Mukherji does not disclose a relay transparent to the hearing user.

d. *Engelke '405 does not disclose transparency of relay captioning service to the hearing user.*

82. It is my opinion that Engelke '405 does not disclose transparency of relay captioning service to the hearing user. (Exhibit 2013.)

83. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that while the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to halfheartedly argue that Engelke '405 could be combined with Liebermann or McLaughlin to disclose the claimed transparency limitation, there is no discussion of how Engelke '405 could cure the failings of Liebermann or McLaughlin discussed above. Despite this omission, I have reviewed Engelke '405 and it is my opinion that neither Engelke '405 alone nor Engelke '405 combined with Liebermann or McLaughlin would disclose that the relay captioning service is transparent to the hearing user for either outgoing calls or incoming calls, and neither Engelke '405 alone nor Engelke '405 combined with Liebermann or McLaughlin would disclose that the hearing user is not aware that the relay is providing assistance on the call for either calls outgoing or incoming calls.

84. In Engelke '405, as shown in FIG. 2, FIG. 3, and FIG. 4, when the hearing user initiates the call, first the hearing user must call the relay (not the

assisted user), second the relay must call the assisted user, and third the call is established and proceeds through the relay. As a result, since the hearing user calls the relay instead of calling the assisted user, the hearing user is already aware of the existence of the relay, before the call starts.

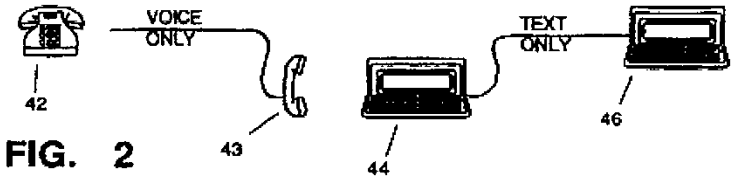


FIG. 2

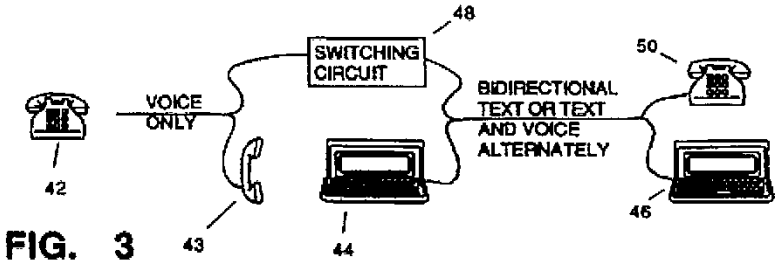


FIG. 3

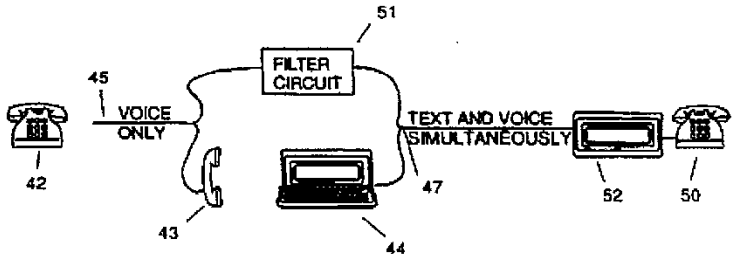


FIG. 4

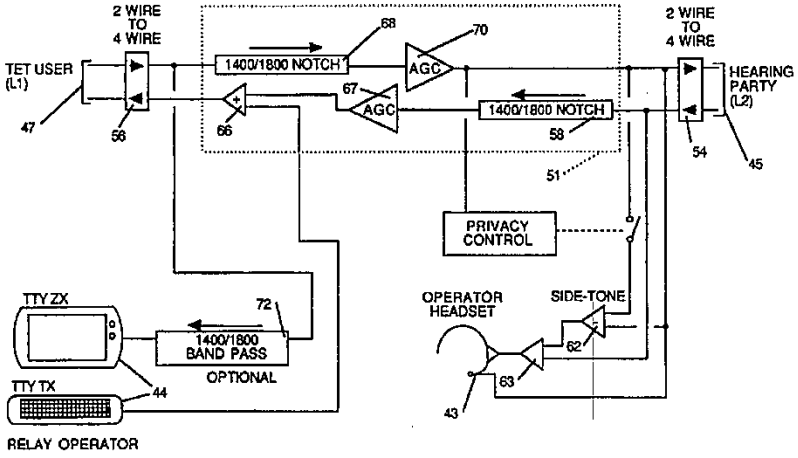


FIG. 5

85. In the other direction, when the assisted user initiates the call, first the assisted user's device must call the relay, second the relay must call the hearing user, and third the call is established and proceeds through the relay. Before the call is even established, with caller ID, the hearing user will see the relay's telephone number, instead of the assisted user's telephone number. As a result, the hearing user is already aware of the existence of the relay, even before the call starts.

> "The purpose of the TET device, when enabled, is to intercept the outgoing call placed by the user, as detected by the DTMF decode circuit. The microcontroller 30, during the dial by the user, intercepts the dialed tones and does not present them on the output line by opening the switch 35. ... Instead, the microcontroller 30 dials the number of the TET relay which the user normally utilizes. ... The relay equipment will then

> automatically dial the number of the hearing user and configure a TET relay with a call assistant in the loop between the TET device, operated by the TET user, and the hearing user at the other end of the line. When the set-up is completed, the hearing user speaks and the call assistant types the words spoken by the hearing user into the TDD at the relay."

(Engelke '405 at 4:60–5:18 (emphasis added)).

> "3. A text enhanced telephone as claimed in claim 1 wherein the microprocessor is programmed, when asked to initiate a call by the user to another party, to (i) **receive a telephone number dialed by the user** for the other party, (ii) dial and connect to a text enhanced telephone relay instead of the telephone number dialed by the user, and (iii) send to the relay machine control functions in an enhanced TDD protocol which **directs the relay to dial the telephone number dialed by the user** and initiate text enhanced relay communications between the user and the other party."

(Engelke '405 at Claim 3 (emphasis added)).

86. Additionally, in Engelke '405, the hearing user is also aware of the relay and the call assistant, because in all the various configurations disclosed in Engelke '405, the call assistant speaks directly to the hearing user (reading the assisted user's texts for the hearing user).

> "A relay, as used herein, refers to a system of voice to TDD communication which uses an operator referred to as a **call**

> **assistant who serves as an intermediate between a hearing user** on one telephone line and a deaf TDD user on a second telephone line. The call assistant wears a headset to **communicate by voice with the hearing user** and also has access"

(Engelke '405 at 1:64–2:3 (emphasis added)).

> "Using the headset, the **call assistant communicates** over the second telephone line in normal voice **with the speaking and hearing party**."

(Engelke '405 at 5:55–57 (emphasis added)).

87. As described above, based on my review of Engelke '405, Engelke '405 does not disclose a relay transparent to the hearing user.

e. ***Engelke '482 does not disclose transparency of relay captioning service to the hearing user.***

88. It is my opinion that Engelke '482 does not disclose transparency of relay captioning service to the hearing user. (Exhibit 2013.)

89. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, in which they argue that Engelke '482, or some individual components thereof, could be combined with Liebermann or McLaughlin to disclose the claimed transparency limitation. I have reviewed Engelke '482 and it is my opinion that neither Engelke '482 alone (nor any individual components thereof), nor combined with Liebermann or McLaughlin

would teach or suggest a relay captioning service that is transparent to the hearing user, or that the hearing user is not aware that the relay is providing captioning on the call, for either outgoing or incoming calls.

90. Before addressing transparency in Engelke '482, an explanation of Engelke '482's switch operation is provided. Engelke '482 discloses a switch at the relay for use by the call assistant. In the first switch setting, the call assistant's voice is sent to a computer to be converted by speech recognition software to text for the assisted user. This first switch setting is essentially a transcription mode, and communication is one way, from the call assistant to the assisted user. In the second switch setting, the call assistant's voice is sent to the hearing user.

> "a switch to **switch the relay between** one mode in which the **voice of the call assistant is transmitted to the computer** and another mode in which the voice of the call assistant is not transmitted to the computer but is **instead transmitted over the telephone system to the hearing person**."

(Engelke '482 Claim 3 (emphasis added)).

> "a switch to alternatively connect the **voice of the call assistant to the computer or** to the telephone system for transmission **to the hearing person**"

(Engelke '482 Claim 10 (emphasis added)).

> "Since the **voice of the call assistant serves two different functions** in the operation of this system, the signal on the call

assistant's voice must be switched so that the hearing user 32 only hears the voice for the communications which are intended to be directed to that person. The switch 52 allows for the voice of the call assistant only to be directed to the hearing person at the appropriate times."

(Engelke '482 7:4–10 (emphasis added)).

The First Switch Setting

91. When the relay switch is set to connect the call assistant to the computer, the call sequence will be as follows:

1. The hearing user speaks.

2. The hearing user's voice is transmitted to the relay through line A.

3. The relay call assistant revoices the hearing user's voice into the computer.

4. The relay speech recognition automatically translates the revoiced speech to text.

5. The text of the revoiced hearing user's voice is transmitted to the assisted user through line B.

6. The assisted user reads the text of revoiced hearing user's voice.

7. The assisted user may write text.

8. The assisted user's text is transmitted to the relay through line B.

9. The relay call assistant switches to the other setting after receiving text from the assisted user.

92. Petitioner may argue that transparency is achieved in this first setting, when the switch at the relay is set to connect the call assistant to the computer. However, this argument makes the system unusable and unviable, because in this switch setting, communication is only one way, and there is no way for the assisted user to communicate back to the hearing user, which is contrary to the basic requirement of two-way communication in any call, not just in '838. Likewise, in this switch setting, Engelke '482 in combination with any of the other prior art will suffer the same disadvantage of having just one-way communication, which is contrary to '838 and is unviable. Finally, because the hearing user is directly connected to the relay, there can be no dispute that this configuration would fail to meet either party's definition of the "transparency" or "awareness" limitations.

The Second Switch Setting

93. When the relay switch is set to connect the call assistant to the hearing user, the sequence will be as follows:

1. The assisted user writes text.

2. The assisted user's text is transmitted to the relay through line B.

3. The relay call assistant speaks (voices) the assisted user's text.

4. The relay call assistant's voice of the assisted user's text is transmitted to the hearing user through line A.

94. In this second setting, the hearing user is fully aware of the relay, because the call assistant speaks directly to the hearing user, voicing the assisted user's text. Likewise, in this switch setting, Engelke '482 alone or in combination with any of the other prior art will render the relay not transparent to the hearing user.

95. Additionally, in Engelke '482, the hearing user and the assisted user must communicate through the relay but not directly. In other words, when the hearing user initiates the call, first the hearing user must call the relay (not the assisted user), second the relay must call the assisted user, and third the call is established and proceeds through the relay. As a result, since the hearing user calls

the relay instead of calling the assisted user, the hearing user is already aware of the existence of the relay, before the call starts.

96. In the other direction, when the assisted user initiates the call, first the assisted user's device must call the relay, second the relay must call the hearing user, and third the call is established and proceeds through the relay. Before the call is even established, with caller ID, the hearing user will see the relay's telephone number, instead of the assisted user's telephone number. As a result, the hearing user is already aware of the existence of the relay, even before the call starts.

97. Contrary to Petitioner's assertion, Engelke '482 does not teach a relay that provides a captioning service to an assisted user that is "transparent" to the hearing user, or "without making the hearing person aware that captioning from the relay is being used," for both incoming and outgoing calls.[1]

Petitioner's and Mr. Occhiogrosso's Argument Regarding Engelke '482's Switch

98. Petitioner begins by mischaracterizing Patent Owner's discussion of the written description support for the "transparency" element. The PICT device

[1] Petitioner does not contend that that the transparency and awareness limitations of claims 31 and 36 are disclosed by Liebermann, McLaughlin, and Engelke '405. Opp. at 12-17; Ex. 2093 142:3-11.

disclosed in the specification of the '838 Patent does not provide transparency *solely* because it uses filters. In fact, the PICT device, as shown in Fig. 6, uses a transformer that physically and electrically isolates the first and second telephone lines. In the PICT device, the second telephone line from the relay simply is not connected in any way that would transmit signals from the relay to the hearing user or to the assisted user's speaker. One easy indicator of that is that Fig. 6 uses directional arrows to show that no signal on the wire extending from the transformer to line two will be travelling *to* line 1. And, the only signal from the second line that is conveyed to either user is the text data, which is filtered and sent to the assisted user's display. (Ex. 1001 at 7:31-67).

99. Engelke '482 discloses a *one-line* relay emobidment and a personal interpreter embodiment, both of which are inherently not "transparent" and never operate without the hearing user's awarness, regardless of whether Petitioner's definitions or Patent Owner's definitions of "transparent" and "aware" are used. That is because the hearing user must either dial the relay to connect (in the case of the 1 line relay) or must actually be using the device that connects to the relay(in the case of the personal interpreter), and in both instances the relay must communicate directly with the hearing user. Ex. 1004, 2:40-52.

100. Additionally, neither of the individual components of the system of Engelke '482 cited by Petitioner teach or suggest any aspect of tranparency or

preventing user awareness. As I explained above, the switch Petitioner cites merely allows the call assistant to selectively control when his or her voice will be sent to the call assistant's computer for conversion to text, and when to the hearing user. *Id.* 5:65-6:15. It does not *prevent* the relay from communicating with the hearing user, and does not render the operation of the relay "transparent" to the hearing user or allow the relay to operate without the hearing user being aware of its presence, because the call assistant could always (and often would) speak directly to the hearing user in ways that would indicate the presence of a captioning relay. I understand that, at his deposition, Mr. Occhiogrosso was unaware of any disclosure in Engelke '482 that teaches a mechanism for locking the switch for any given type of call so that the CA would be *prevented* throughout the call from communicating to the hearing user. As I noted above, no such mechanism would exist, or it would render the system of Engelke '482 unidirection. For this reason, the switch in Engelke '482 inherently cannot be used to provide transparency.

101. Finally, and importantly, claims 31 and 36 refer to the captoined device processor, not any component at the relay, as providing the transparency. The switch of Engelke '482 is disclosed as being located at the relay and necessarily would have to be located at the relay to perform its function.

102. And, nothing about the function or usage of filter 26 in Engelke '482 suggests any rationale or motivation for providing transparency; filter 26 of Engelke '482 exists in the personal interpreter 10 (the very presence of which would inherently render the relay and text assistance non-transparent to the hearing user) for the sole purpose of ***permitting*** signals from the relay to be transmitted via speaker to the hearing user. *Id.* at 7:21-31. It other words, filter 26 removes some signals (data) from a line between the personal interpreter and relay and passes other signals (the voice of a CA) to the hearing user that by their very nature indicate the presence of a captioning relay. Thus, Engelke '482's switch and filter are usable only for purposes directly contrary to the limitations of claims 31 and 36 - they give the relay the ability to communicate with the hearing user.

103. As described above, based on my review of Engelke '482, Engelke '482 does not disclose a relay transparent to the hearing user.

f. *No combination of the cited prior art references discloses transparency of relay captioning service to the hearing user.*

104. As shown above, none of the cited prior art references disclose that the relay captioning service is transparent to the hearing user for either outgoing calls or incoming calls, and none of the cited prior art references disclose that the hearing user is not aware that the relay is providing assistance on the call for either outgoing calls or incoming calls. Therefore, no combination of the cited prior art

references discloses that the relay captioning service is transparent to the hearing user for either outgoing calls or incoming calls, and no combination of the cited prior art references discloses that the hearing user is not aware that the relay is providing assistance on the call for either outgoing calls or incoming calls.

105. In addition, it is my opinion that the transparency feature would not be obvious over the teachings of the combination of the references cited by Petitioner and Mr. Occhiogrosso. The combination of Liebermann with any of the references identified by Mr. Occhiogrosso (*see* Exhibit 1019, ¶¶ 88–92) can't be made transparent because it would mean losing the synthesized voice feature, which is fundamental to Liebermann and thus would mean changing its principle operation. Similarly, the combination of McLaughlin with any of the references identified by Mr. Occhiogrosso (*see* Exhibit 1019, ¶¶ 88–92) can't be made transparent because any such combination would alert the hearing user that the relay was present in all the same ways described in the section on McLaughlin above. Even if a POSA decided to lose all the elements of McLaughlin that make it non-transparent (e.g., the interaction between the hearing user and the operator, etc. as described above) such a combination still would not teach transparency for outgoing calls for the same reasons that McLaughlin alone does not teach transparency for outgoing calls, as described above.

106. Even the combination of Engelke '482 with Liebermann, McLaughlin, and Engelke '405 does not teach the transparency or awareness limitations. Even accepting Petitioner's position on the teachings of these references, the combination would result in a 2-line system having a switch that allows the relay operator to control when his or her voice is sent to the hearing user, and a filter that *still passes voice signals from the relay to the hearing user.* As a POSA would recognize, the very function of a filter is to block some portion of a signal, and allow the remainder of the signal to pass. If the filter of Engelke '482 were included in an assisted user's device as contemplated by the combination of Liebermann, McLaughlin, and Engelke '405, it would still pass some signals from the relay to the hearing user.

107. And, as for why a POSA would want to use the filter of Engelke '482 (which does not accomplish transparency), Petitioner (1) explains why a POSA would want to use the revoicing feature of Engelke '482, which is irrelevant to whether a POSA would want to use the filter of Engelke '482, and (2) manufactures a completely unsupportable and illogical problem for the purpose of saying the filter would solve it. Specifically, Petitioner states, without explanation, that "If there were no filters in a two-line system, this digital text stream would be passed to assisted user's speaker and to the hearing user's speaker." (Op. at 15). It is unclear why Petitioner believes that a two-line system must inherently send

signals from the relay to the assisted user's speaker and to the hearing user's speaker. Doing so is certainly not part of claims 31 and 36, or of any of the two-line embodiments discussed in the specification of the '838 Patent. To the extent Petitioner is implying that a POSA would find it inherent or obvious to create a two-line system that sends signals from the relay to the assisted and hearing users' speakers, such implication proves the non-obviousness of claims 31 and 36, which require the relay to remain "transparent" so that the hearing user is not "aware" of its operation.

108. Finally, Petitioner and its expert provide no motivation or rationale for why a POSA would have found it obvious to create some new component or circuitry that is not found in the cited prior art that would keep the operation of the relay of the combined references "transparent" or prevent it from making its presence known to the hearing user. For example, Petitioner and Mr. Occhiogrosso cite no evidence or rationale (other than hindsight) for why a POSA would have wanted to provide transparency in the first place. As noted above, this is significant in light of the fact that all of the cited prior art references contain specific features or teachings that require non-transparency.

D. <u>Claims 32 and 34 are patentable over the prior art.</u>

109. It is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover a relay captioning service which allows use of the

device by the assisted user to place conventional phone calls using only the first communication link, while the second communication link lies dormant unless and until the assisted user activates the activator to invoke captioning. This is reflected in, at least, amended claims 32 and 34 which were amended, to include the following language:

> "[C] the captioned device processor is further programmed not to initiate the **IP connection to the relay** to invoke the captioning service unless the assisted user has activated the activator; and
>
> [D] wherein the captioned device processor is further programmed to, upon dialing by the assisted user but without the assisted user having selectively operated the activator, **establish a telephone call solely using the telephone line, directly between the assisted user's captioned device and a conventional telephone device of the hearing person in the same manner as with a conventional telephone, such that the assisted user and hearing person can carry on a telephone conversation while the IP connection to the relay has not been established."**

Claim 32 (amended Claim 2) (Paper 16) (emphasis added).

> "[C] the captioned device processor is further programmed not to initiate the **IP connection to the relay** to invoke the captioning service unless the assisted user has operated the activator; and . . . .
>
> [D] wherein the captioned device processor is further programmed to, upon dialing by the assisted user but without the assisted user having selectively operated the activator, **establish a telephone call solely using the telephone line, directly between the assisted user's captioned device and a conventional telephone device of the hearing person in the same manner as with a conventional telephone, such that the assisted user and hearing person can carry on a telephone conversation while the IP connection to the relay has not been established.**

Claim 36 (amended Claim 17) (Paper 16) (emphasis added).

110. Because these claims recite two separate and distinct connections, having their own connectors, they distinguish over the cellular embodiment of *Liebermann*, which as explained above would have only one connection and one connector. The claims also distinguish over *Mukherji*, which as explained above has only one connection as well.

111. None of the cited prior art references disclose use of the device by the assisted user to place conventional phone calls using only the first communication

link, while the second communication link lies dormant unless and until the assisted user activates the activator to invoke captioning.

112. In his declaration, Mr. Occhiogrosso argues that by conflating "telephone line" and "IP connection", this limitation is taught by some of the prior art. I disagree. As explained above in the "claim construction" section, a POSA would know that a "telephone line" and an "IP connection" are separate things in the '838 Patent.

113. Mr. Occhiogrosso goes on to rely entirely on Mukherji to disclose that "the captioned device processor is further programmed not to initiate the IP connection to the relay to invoke the captioning service unless the assisted user has activated the activator." I disagree that this claim limitation is taught by Mukherji. Indeed, as I previously opined, Mukherji does not teach or suggest that the users should have more than one network interface, particularly given that all voice and text communications are transferred only between the same two parties. (*Id.* at Fig. 1; 3:59-4:8 (describing voice packets sent via network interface 36); 4:9-12 (describing text packets sent via the same network interface 36)). Further, the problem addressed in Mukherji (overcoming degradation of voice communications) suggests a system that, as disclosed therein, can automatically make the text link connection, contrary to the language of claims 32 and 34. (*Id.* at 4:67-5:6 ("Communications equipment 12 may establish the voice and text session

... when a degradation in the quality of the voice communications is detected.... In a particular embodiment, a degradation in the quality of the voice link triggers an automatic initialization of the voice-to-text capabilities."). If anything Mukherji suggests that automatic connection of captioning, apart from any user's manual request, is desirable.

114. Additionally, as discussed above in regard to my opininos that the prior art does not teach transparency, *all* of the prior art references teach sending voice signals of some sort to the hearing user from the relay (or Center in the case of *Liebermann*, or the other user in the case of *Mukherji*). Petitioner attempts to rely on the switch of Engelke '482 (discussed above in this declaration) as teaching element [F] of claims 32 and 34. However, as discussed above that switch does not prevent voice signals from being sent *to the captioned device*,but rather merely toggles between sending the call assistant's voice to the voice recognition software or to the hearing user. Claims 32 and 34 recite "wherein the processor at the call assistant's workstation is further programmed not to send any voice signals from the call assistant *to the captioned device*." The switch in Engelke '482 does not affect whether any voice signals are sent to the captioned device.

E. Claims 33 and 35 (which incorporate the advantages of isolation and substantially simultaneous display) are patentable over the prior art.

115. It is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover a relay captioning service with (1) the isolation of the relay from the assisted user by having the relay provide only text to the assisted user, and (2) the "substantially simultaneous" display of text as claimed in the invention. This is reflected in, at least, amended claims 33 and 35 which were amended, to include the following language:

> "[F] wherein the processor at the call assistant's workstation is further **programmed not to send any voice signals from the call assistant to the captioned device**; and
> [G] wherein the captioned device processor is further programmed to display the text received from the relay, which comprises the words spoken by the hearing person, via the visual **display for the assisted user to view substantially simultaneously with broadcasting the words spoken by the hearing person to the assisted user via the speaker."**

Claim 33 (amended Claim 3) (Paper 16) (emphasis added).

> "[F] wherein the processor at the call assistant's workstation is further **programmed not to send any voice signals from the call assistant to the captioned device**; and
> [G] wherein the captioned device processor is further programmed to display the text received from the relay, which comprises the words spoken by the hearing person, via the

visual **display for the assisted user to view substantially simultaneously with broadcasting the words spoken by the hearing person to the assisted user via the speaker."**

Claim 36 (amended Claim 17) (Paper 16) (emphasis added).

116. None of the cited prior art references disclose, in any viable two-line mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

117. This capability of isolating the relay from the assisted user prevents the relay from communicating with the assisted user except by providing text to the assisted user, while the assisted user converses over a separate, voice-only line with the hearing user. For example, the relay may not transmit voice to the assisted user, whether the voice is the call assistant's voice, the hearing user's voice, synthesized voice, or any other type of voice. For another example, the relay may not transmit, other than text, any data to the assisted user, such as compressed images, identifiers, or other types of data.

118. This isolation restriction simplifies the hardware and software at the assisted user's device, thus reducing the device's cost, power consumption, and size. This isolation restriction also simplifies the operation of the assisted user's device by having only text received by the assisted user from the relay and simplifies the operation of the relay.

119. It is my opinion that the '838 Patent's specification and the claims, as amended, disclose and cover the display of text words substantially simultaneously with the broadcast of the hearing user's voice. The capability of substantially simultaneous display of text words with the broadcast of the hearing user's voice is an important feature, because, for example, it allows the assisted user to read the corresponding text at nearly the same time as they are hearing it; lengthy delays between the voice and corresponding text render the text unusable or even distracting.

1. No prior art teaches the isolation advantages of the claimed invention.

120. As shown below, none of the cited prior art references disclose, in any viable mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

a. *Liebermann does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user.*

121. It is my opinion that Liebermann does not disclose isolation of the relay from the assisted user.

122. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '482 when discussing the isolation limitation. (*See* Exhibit 1019, ¶¶ 64–

84.) While Petitioner and Mr. Occhiogrosso also appear to halfheartedly argue that Liebermann could be combined with Engelke '482 to disclose the claimed isolation limitation, there is no discussion of how Lieberman could cure the failings of Engelke '482 discussed below. Despite this omission, I have reviewed Liebermann and it is my opinion that neither Liebermann alone nor Liebermann combined with Engelke '482 would disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

123. In Liebermann, the relay provides sign language to the assisted user, instead of only text. In Liebermann, signs (sent to the assisted user) and synthesized voice (sent to the hearing user) are transmitted from the relay to the assisted user through the dedicated line. In other words, Liebermann does not teach that the relay provides only text to the assisted user; instead, Liebermann teaches that the relay transmits signs (to the assisted user), not text, and synthesized voice (to the hearing user). This is shown in Figure 1:

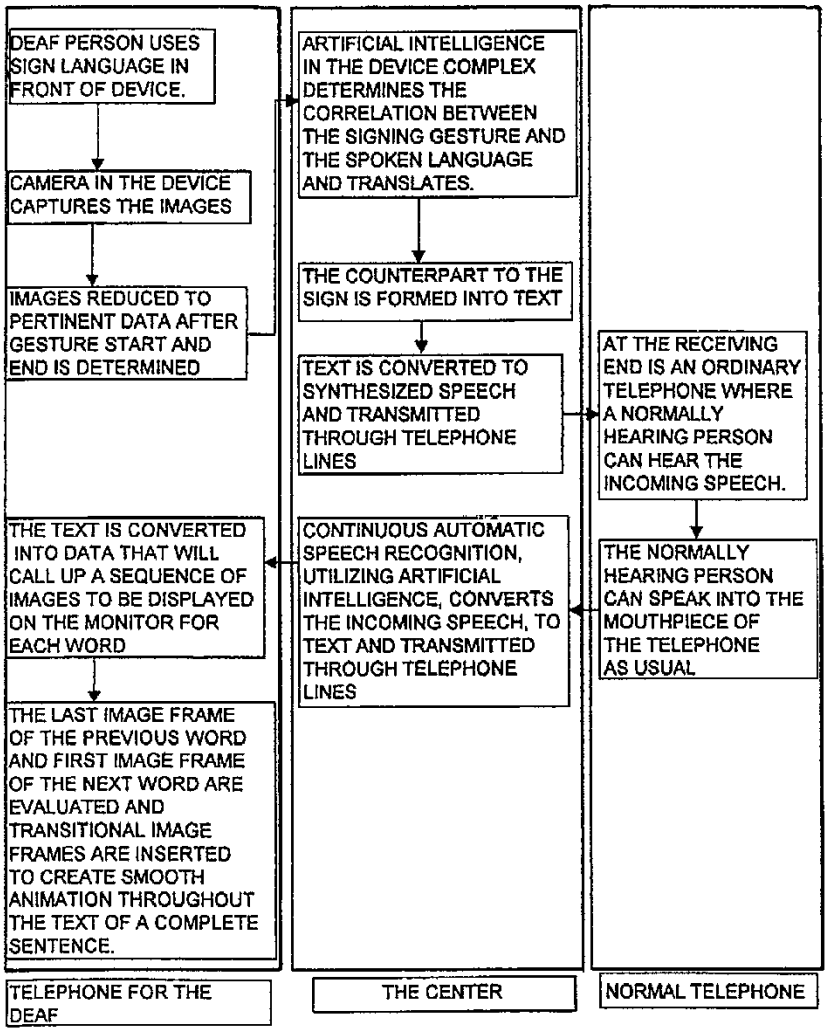


FIG. 1

124. In addition, Liebermann also clearly states that:

> "The signing motion of the deaf person are processed by the center and is transmitted back to the device as a normal voice transmission which the speaker renders as speech to the normally hearing person."

(Liebermann at 7:36–39).

125. As described above, based on my review of Liebermann, Liebermann does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user as described in the proposed '838 Patent claims.

b. ***McLaughlin does not disclose isolation of the relay from the assisted user by relay's providing only text to the assisted user.***

126. It is my opinion that McLaughlin does not disclose isolation of the relay from the assisted user.

127. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '482 when discussing the isolation limitation. (*See* Exhibit 1019, ¶¶ 64–84.) While Petitioner and Mr. Occhiogrosso also appear to halfheartedly argue that McLaughlin could be combined with Engelke '482 to disclose the claimed isolation limitation, there is no discussion of how McLaughlin could cure the failings of Engelke '482 discussed below. Despite this omission, I have reviewed McLaughlin and it is my opinion that neither McLaughlin alone nor McLaughlin combined with Engelke '482 would disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

128. McLaughlin describes multiple ways whereby the relay provides more than text to the assisted user's device (assuming that Petitioner's view of McLaughlin as teaching one device having two modems is correct), yet, there is no single embodiment in McLaughlin where the relay is explicitly isolated from the assisted user's device except through sending text to the assisted user. To be clear, I do not agree with Petitioners that McLaughlin teaches any one, single device that comprises both the SVD A and SVD B modems and is the same device being used by the assisted user (i.e., has a speaker, microphone, display, etc.). Nonetheless, for purposes of my opinions below I will assume Petitioner's view because even in doing so, it is clear McLaughlin *still* does not teach sending only text to the assisted user's device from the relay.

129. For example, McLaughlin discloses that when the assisted user types, the relay call assistant voices the assisted user's text for the benefit of the hearing user. Therefore, since McLaughlin's relay sends the call assistant's voice to the assisted user's device for retransmission to the hearing user, McLaughlin does not isolate the relay from the assisted user's device by providing only text to the assisted user. This is described in the specification:

> "For instance, if a hearing/speaking person wishes to talk to a deaf/speech impaired person, the relay operator will listen to the speaking person and type the words to the deaf person's TDD

> or modem. **If the speech impaired person types back, the relay operator voices this text to the hearing party**."

(McLaughlin at 29:20–27, (emphasis added)). The call assistant's voice, under Petitioner's view of McLaughlin, would travel from the relay to the SVD B modem of the deaf user's device, would be bridged to the SVD A modem, and then would exit the device to the hearing user.

130. As another example, McLaughlin discloses that voice and text exist on the same phone line between the relay and the assisted user. Therefore, in this embodiment, since McLaughlin's relay sends voice and text to the assisted user, McLaughlin does not isolate the relay from the assisted user by providing only text to the assisted user. This is also described in the specification:

> "**In this case there are both voice sounds, and modem data, existing on the same phone line during the call**. In the usual technique, a TDD Baudot modem is used. Since TDD Baudot modems do not have a modem carrier, voice sounds and the FSK modulation sounds of the TDD can both exist on the same phone line, but there are severe difficulties in putting simultaneous voice sounds and TDD tones on the phone line at the same time. Any person listening to voice sounds in such a case will also hear the TDD tones, unless special filtering techniques are used."

(McLaughlin at 29:47–56 (emphasis added)).

131. As described above, based on my review of McLaughlin, McLaughlin does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user as described in the proposed '838 Patent claims.

c. ***Mukherji does not disclose isolation of the relay from the assisted user by relay's providing only text to the assisted user.***

132. It is my opinion that Mukherji does not disclose isolation of the relay from the assisted use.

133. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '482 when discussing the isolation limitation. (*See* Exhibit 1019, ¶¶ 64–84.) While Petitioner and Mr. Occhiogrosso also appear to halfheartedly argue that Mukherji could be combined with Engelke '482 to disclose the claimed isolation limitation, there is no discussion of how Mukherji could cure the failings of Engelke '482 discussed below. Despite this omission, I have reviewed Mukherji and it is my opinion that neither Mukherji alone nor Mukherji combined with Engelke '482 would disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

134. Mukherji does not disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user. Indeed, Mukherji does not teach or even mention the existence of a relay, as shown below:

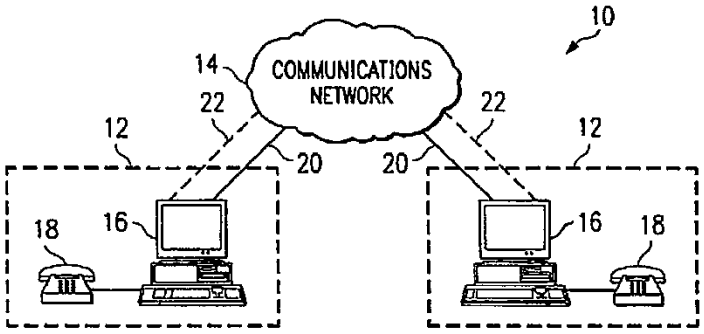


FIG. 1

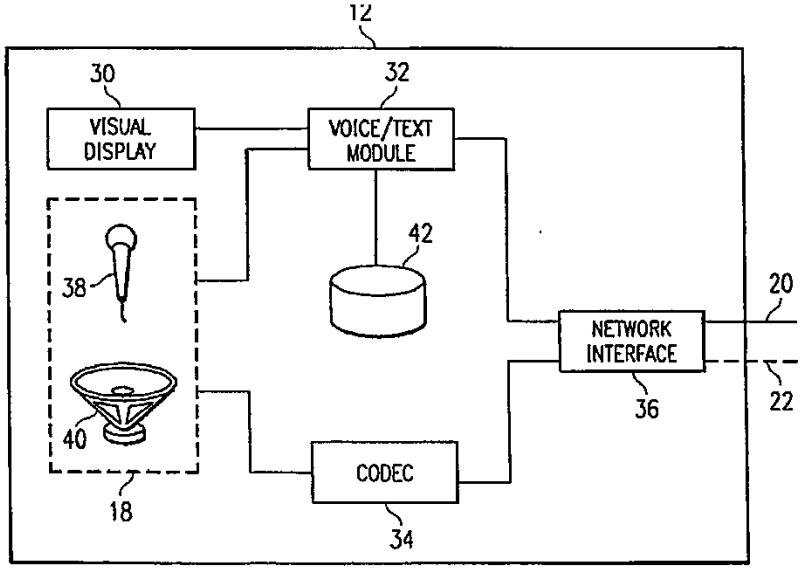


FIG. 2

135. Mukherji states that:

> "Computing device 16 may use any appropriate speech recognition hardware and/or software for converting between voice and text. For example, **computing device 16 may**

> **operate using IP telephony software which contains speech recognition capabilities** or may interface packet-based communications software with commercially available speech recognition software."

(Mukherji at 3:35–41 (describing FIG. 2) (emphasis added)).

> "**Voice/text module 32 includes speech recognition** modules capable of converting voice information received using microphone 38 into text and then encoding the text into packets for communication using network interface 36."

(Mukherji at 4:9–12 (describing FIG. 2) emphasis added)).

> "Memory 42 may store transcripts of current and previous communication sessions, communications applications, telephony applications, interface applications, speech synthesis applications, **speech recognition applications**, language translation applications, and other appropriate software and data."

(Mukherji at 4:53–58 (describing FIG. 2) (emphasis added)).

136. Setting aside the lack of a relay, Mukherji does not permit isolation whereby the relay only sends text to the assisted user. In other words, there is no way in Mukherji for a user to only send text without voice.

137. In Mukherji, when captioning is disabled, participants only exchange voice but not text. When captioning is enabled, each of the two participants on a call will receive the other call participant's voice and text – both. In other words,

in a call between user 1 and user 2, user 1 sends voice and text to user 2, and user 2 sends voice and text to user 1. Therefore, whether captioning is enabled or disabled, on one side or both sides, there is no way for Mukherji to have captioning with isolation whereby the relay only sends text but not voice to the assisted user.

> "The communications equipment receives voice information from a user using the voice input device, converts the voice information into text, and **communicates packets encoding the voice information and the text to a remote location**. The communications equipment also **receives packets encoding voice and text information from the remote location**, outputs the voice information using the acoustic output device, and outputs the text information using the visual display device."

(Mukherji Abstract, emphasis added)

138. Since Mukherji precludes isolation, combining Mukherji with any of the other prior art references will still impede isolation.

139. Petitioner suggests combining Liebermann with Mukherji. The only possible place for Mukherji in such a combination is for the Mukherji link to be between the relay and the assisted user, because the link between the assisted user and the hearing user does not include captioning. Therefore, combining Mukherji with Liebermann will preclude isolation whereby the relay only sends text to the assisted user. One of Petitioner's theories is that each Mukherji's link is supposedly two links: one for voice and one for text. If this theory is true (and it is

not), then combining Liebermann with Mukherji will result in three lines: two lines between the relay and the assisted user (per Petitioner's theory) and one line between the assisted user and the hearing user. Regardless, combining Liebermann with Mukherji will ensure lack of isolation.

140. Petitioner also suggests combining McLaughlin with Mukherji. Again, the only possible place for Mukherji in such a combination is for the Mukherji link to be between the relay and the assisted user, because the link between the assisted user and the hearing user does not include captioning. Therefore, combining Mukherji with McLaughlin will preclude isolation where the relay only sends text to the assisted user; in other words, combining Mukherji with McLaughlin will ensure lack of isolation.

141. As described above, based on my review of Mukherji, Mukherji does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user as described in the proposed '838 Patent claims.

d. *Engelke '405 does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user.*

142. It is my opinion that Engelke '405 does not disclose isolation of the relay from the assisted user.

143. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and

Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '482 when discussing the isolation limitation. (*See* Exhibit 1019, ¶¶ 64–84.) While Petitioner and Mr. Occhiogrosso also appear to halfheartedly argue that Engelke '405 could be combined with Engelke '482 to disclose the claimed isolation limitation, there is no discussion of how Engelke '405 could cure the failings of Engelke '482 discussed below. Despite this omission, I have reviewed Engelke '405 and it is my opinion that neither Engelke '405 alone nor Engelke '405 combined with Engelke '482 would disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

144. Engelke '405 does not disclose, in any viable mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

145. Engelke '405's embodiment depicted in FIG. 4 (the operation of which is described in the preceding section and is incorporated herein by reference) does not disclose isolation of the relay from the assisted user by having the relay provide only text to the assisted user. In this embodiment, the assisted user receives text and the hearing user's voice. Hence, there is no isolation in this embodiment. Any combination of Engelke '405 in this embodiment with the other prior art references will have the same drawback.

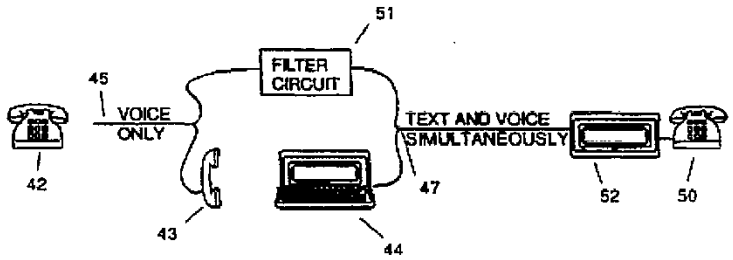


FIG. 4

146. The same system shown in Figure 4 is described in the specification:

> "Illustrated in FIG. 4 is the general scheme for the typical relay implementing TET. The telephone 42 of the hearing user is connected by a first telephone line 45 to the handset 43 of the call assistant. The **call assistant types at the TDD 44**, placing data communications on a second telephone line between the relay and the hard of hearing user who is at the telephone 50. A TET appliance 52 is also placed in series with the telephone 50. A filter circuit 51 **connects the telephone line 45 from the hearing user's telephone 43 to the telephone line 47**. The filter circuit 51 is constructed such that all voice communications, but no data signals from text, pass through the filter circuit 51, so that the hearing user does not hear the communication tones of the text transmissions. At the station of the deaf or hard of hearing user, **the TET appliance 52 receives the text communications from the TDD 44** and displays the received text characters for the user. At the same time, **the TET device 52** filters from the telephone line 47 the text communications signals so that the user on telephone 50 only **hears the voice communications**."

(Engelke '405 at 6:29–47 (emphasis added)).

147. As described above, based on my review of Engelke '405, Engelke '405 does not disclose isolation of the relay from the assisted user by the relay's providing only text to the assisted user as described in the proposed '838 Patent claims.

e. ***Engelke '482 does not disclose isolation of the relay from the assisted user by relay's providing only text to the assisted user.***

148. It is my opinion that Engelke '482 does not disclose isolation of the relay from the assisted user.

149. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration provide no specificity about how Engelke '482 discloses this capability. Engelke '482 does not disclose, in any viable mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

150. As described earlier, Engelke '482 discloses a switch at the relay for use by the call assistant to switch the call assistant's voice between being sent to the computer (for transcription by speech recognition) or being sent to the hearing user. In the previous section I described the function of the switch settings in Engelke '482, that discussion is incorporated herein by reference.

151. Petitioner may argue that isolation is achieved in the first setting, where the switch at the relay is set to connect the call assistant to the computer. However, this argument makes the system unusable and unviable, because in this switch setting, communication is strictly one way, and there is no way for the assisted user to communicate back to the hearing user, which is contrary to the

basic requirement of two-way communication in any call, not just in '838. Likewise, in this switch setting, Engelke '482 in combination with any of the other prior art will suffer the same disadvantage of having just one-way communication, which is contrary to '838 and is unviable.

152. When the Engelke '482 switch is on the other setting, with the assistant call's voice being sent to the hearing user, the assisted user does not receive any text, even if the hearing user is speaking, which is equivalent to a call without captions, making the system unviable and contrary to '838.

> "Since the voice of the call assistant serves two different functions in the operation of this system, the signal on the call assistant's voice must be switched so that the hearing user 32 only hears the voice for the communications which are intended to be directed to that person. The switch 52 allows for the voice of the call assistant only to be directed to the hearing person at the appropriate times."

(Engelke '482 at 7:4–10).

> "3. A method as claimed in claim 1 further comprising a switch to switch the relay between one mode in which the voice of the call assistant is transmitted to the computer and another mode in which the voice of the call assistant is not transmitted to the computer but is instead transmitted over the telephone system to the hearing person."

(Engelke '482 at Claim 3).

> "In the reverse, when the deaf user types onto his or her telecommunication device, the digital signals are transmitted to the computer 42 which displays them for the call assistant who then voices those words into the microphone 39 which words are then transmitted onto the telephone line 34."

(Engelke '482 at 6:65–7:2).

153. Based on these disclosures, it is clear that Engelke '482 does not teach a relay such as the one described in claims 33 and 35, that is prevented from communicating with the hearing user and can communicate with the assisted user only via sending text. Rather, the system in Engelke '482 is a one-line system, where the relay must communicate directly with the hearing user. (Engelke '482, 2:40–52.) The switch allows the relay operator to control whether their voice is sent to the computer, for conversion to text, or to the hearing user. (Engelke '482 5:65–6:15.) It does not prevent the relay operator from communicating with the hearing user as the operator controls the switch; at any time the operator can use it to communicate with the hearing user. *Id.*

154. Therefore, regardless of Engelke '482's switch setting, Engelke '482 does not provide, in any viable mode, isolation whereby the relay only provides only text to the assisted user.

155. As described above, based on my review of Engelke '482, Engelke '482 does not disclose isolation of the relay from the assisted user by the relay's

providing only text to the assisted user as described in the proposed '838 Patent claims.

f. ***Mr. Occhiogrosso's opinion that Engelke '482 discloses isolation is incorrect***

156. It is my understanding that Mr. Occhiogrosso has opined that Engelke '482 could be combined with other references and would disclose a isolation of the relay from the assisted user by the relay's providing only text to the assisted user as described in the proposed '838 Patent claims. I disagree.

157. According to Mr. Occhiogrosso, Engelke '482 could be combined with other references to create a system that would include the filter described in Engelke '482 and that the filter would be placed by a POSA inside the assisted user's device. (Exhibit 2093, 142:18–143:2.)

158. As Mr. Occhiogrosso is undoubtedly aware, and testified, the purpose of filters is, by their very definition, to remove some signals while letting other signals pass through. (Exhibit 2093, 29:23–30:10, 142:12–17.) That is, a filter separates different signals (or different parts of a signal) on a single line, allowing select signals to pass. *Id.*

159. From an isolation perspective, the inclusion of such filters would be nonsensical—none of the signals from the relay need to be filtered since none of the signal from the relay is being passed along to the hearing user. Instead it appears that Mr. Occhiogrosso has modified the filter in Engelke '482 and changed

it into something else entirely, though neither he, in is declaration, nor Peitioner, in its Opposition brief, explain exactly what that is. In any case, Mr. Occhiogrosso, however, is completely silent on why a POSA would change Engelke '482 to incorporate something not disclosed therein to completely isolate an entire signal. (*See* Exhibit1019, ¶¶ 71–73.)

160. Furthermore, Mr. Occhiogrosso's opinions about what a POSA would find obvious to do with the filters of Engelke '482 actually supports that the isolation features of element [F] of claims 33 and 35 is nonobvious. Mr. Occhiogrosso stated that it would be obvious to implement a systemt that broadcast audio signals from the relay, including "voice packets" to the assisted user:

> These filters teach and suggest to a person of ordinary skill the importance of not broadcasting text signals over a speaker. Broadcasting communication tones corresponding to text (unfiltered) would produce a perceptible noise that would be highly distracting to a user. Before the priority date, a person of ordinary skill in the art would have found it obvious to implement this filtering scheme in many different ways. For example, in a system using analog transmission of voice and text, incorporating *Engelke '482*'s filters would prevent communications tones from being broadcast to either party. In a packet based system, a person of ordinary skill would implement *Engelke '482's* filters ***by routing voice packets to the users*** and text packets only to a display.
>
> (Ex. 1019, ¶ 73).

161. Furthermore, Mr. Occhiogrosso's proposed use of a switch to achieve the claimed isolation feature of element [F] would not actually result in what is claimed. First, Mr. Occhiogrosso reasons that "including the switch would prevent

the relay from transmitting any voice at all. As discussed above, that is not the function of the switch of Engelke '482 or any switch. The switch in Engelke '482 toggles between sending voice signals one place (to a hearing user) or another (to a voice recognition program). Second, even if the switch were somehow modified to become something other than the switch, Mr. Occhiogrosso has not explained what that would be, or why it would be obvious to do so. Regardles, whatever it is he thinks the switch would be modified to become, his proposed implementaiton of it is ***not*** what is claimed: "This would prevent the relay from transmitting any voice to the hearing user." (Ex. 1019, ¶ 73). In contrast, element [F] recites the relay not sending voice *to the assisted user's* device.

2. ***No combination of the cited prior art references discloses the isolation of the claimed invention.***

162. As shown above, none of the cited prior art references disclose, in any viable mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

163. In my opinion, the combination of Engelke '482 with Liebermann, McLaughlin, and Engelke '405 also does not teach the isolation limitation, element [F] of claims 33 and 35. Rather, the most that can be said for the combination of those references is a 2-line system with a switch permitting the relay operator to control whether their voice is sent to a computer for translation or to the hearing user. Such a device is nothing like what is claimed in proposed amended claims 33

and 35, which require the relay be prevented from sending voice signals to the captioned device.

164. Therefore, no combination of the cited prior art references discloses, in any viable mode, isolation of the relay from the assisted user by having the relay provide only text to the assisted user.

3. ***No prior art individually teaches the "substantially simultaneous" display of the claimed invention.***

165. As shown below, none of the cited prior art references disclose, in any viable mode, substantially simultaneous display of text words with the broadcast of the hearing user's voice.

a. ***Liebermann does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.***

166. It is my opinion that Liebermann does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

167. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '405 when discussing the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶ 62.) Petitioner and Mr. Occhiogrosso perform virtually zero analysis regarding whether Engelke '405 could be combined with any other reference to achieve the subject matter of claims 33 and 35. (*Id.*) Despite this

omission, in an abundance of caution, I have reviewed Liebermann and it is my opinion that neither Liebermann alone nor Liebermann combined with Engelke '405 would disclose the substantially simultaneous display of text words with the broadcast of the hearing user's voice.

168. In Liebermann, the assisted user's signs undergo multiple complex transformations from sign language into synthesized speech. First, the assisted user's signs are converted to digitized frames that are further converted to identifiers. Then, using artificial intelligence, these identifiers are correlated with and mapped to vocabulary and grammar. The correlated vocabulary and grammar are then are built into sentences of verbal text with syntactically appropriate language, again using artificial intelligence. Lastly, the verbal text is transformed into synthesized text and sent to the hearing user. As a result, Liebermann incurs delays due to the complex multi-step process of converting the assisted user's signs to synthesized speech, converting the hearing person's speech to signs, as well as transmitting images, identifiers, and data. This process is shown in Figure 1:

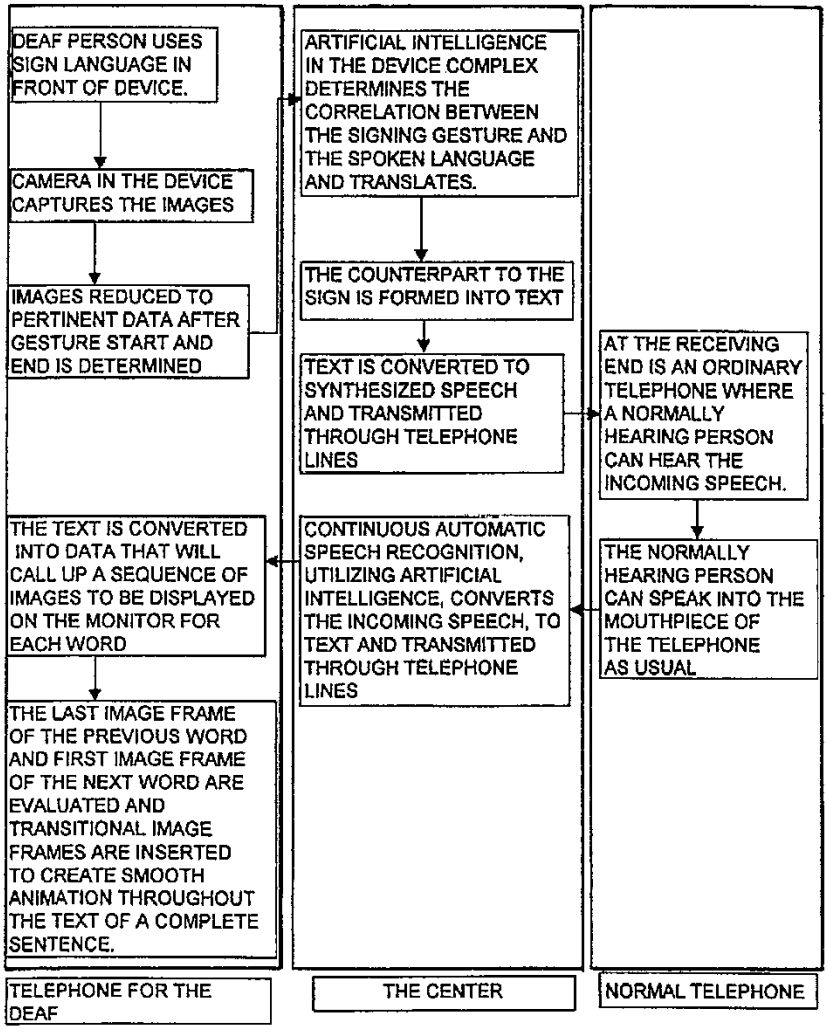


FIG. 1

169. This process is also described in the specification, as follows:

"Generally, the deaf person uses sign language in front of a device containing a video camera. The images captured by the camera at 20–30 frames/second are processed by a digital device which does initial and extended image processing. In the processing, each of the frames containing a captured image undergoes a process whereby the **image is transformed into**

> **manageable identifiers**. It is the set of identifiers, in the form of tables of numbers, that travels the normal telephone lines to the central processing facility (i.e., the Center). These identifiers, and not the images themselves, are then **correlated with a database of vocabulary and grammar** by using artificial intelligence at the Center. Subsequently, **syntax rebuilding occurs**, again **utilizing artificial intelligence**, resulting in a complete **verbal text which is equivalent to the signed language** content. The **text then undergoes a text-to-synthesized-speech transformation** and the speech is sent as an analog signal to any ordinary telephone utilized by a hearing person by existing copper or fiberoptic telephone lines."

(Liebermann at 4:60–5:11 (emphasis added)).

170. As is clear from both the specification and FIG. 1, Liebermann provides to the assisted user an animated sequence of images showing the words being spoken by the hearing user. Nowhere does Liebermann disclose simultaneously displaying text to the assisted user with the broadcast of voice.

171. As described above, based on my review of Liebermann, Liebermann does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice as described in the proposed '838 Patent claims.

b. *McLaughlin does not disclose substantially simultaneous display of text with the broadcast of the hearing user's voice.*

172. It is my opinion that McLaughlin does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

173. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '405 when discussing the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Petitioner and Mr. Occhiogrosso perform virtually zero analysis regarding whether Engelke '405 could be combined with any other reference to disclose Claim 30 when you include the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Despite this omission, in an abundance of caution, I have reviewed McLaughlin and it is my opinion that neither McLaughlin alone nor McLaughlin combined with Engelke '405 would disclose the substantially simultaneous display of text words with the broadcast of the hearing user's voice.

174. In McLaughlin, the call assistant at the relay manually transcribes the hearing user's speech to text, which is inherently inconsistent and slower than automated conversion. This results in inconsistent and unpredictable delays due to the variance in call assistant's typing speed and human attention.

> "In one presently preferred embodiment a relay service staffed by **human *[sic.]* operatores** will be employed by the automated network communication system 10 **to translate the voice into text** and allow the delivery of the text to the deaf user as any other text message."

(McLaughlin at 26:63–67 (emphasis added)).

175. At no point does McLaughlin disclose that *any* audible, spoken words from the hearing user would be broadcast to the deaf user. That feature is simply lacking from the dual-SVD modem embodiment that Peitioner claims represents a two-line system.

176. As described above, based on my review of McLaughlin, McLaughlin does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice hearing user's voice as described in the proposed '838 Patent claims.

c. ***Mukherji does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.***

177. It is my opinion that Mukherji does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

178. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of

Engelke '405 when discussing the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Petitioner and Mr. Occhiogrosso perform virtually zero analysis regarding whether Engelke '405 could be combined with any other reference to disclose Claim 30 when you include the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Despite this omission, in an abundance of caution, I have reviewed Mukherji and it is my opinion that neither Mukherji alone nor Mukherji combined with Engelke '405 would disclose the substantially simultaneous display of text words with the broadcast of the hearing user's voice.

179. Mukherji does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice, because there is no relay in Mukherji. In fact, Mukherji warns of delays inherent in using the technology described in Mukherji:

> "However, the Internet was not designed for real-time communications, and the underlying transport mechanisms of the Internet **may result in delays and the loss of data**. Thus, voice communications taking place over the Internet may **suffer serious degradation** in quality when packets relaying **voice communications are lost or delayed**."

(Mukherji at 1:18–24 (emphasis added)).

> "These **text packets will provide, even if somewhat delayed**, a virtually guaranteed communications link."

(Mukherji at 5:44–46 (emphasis added)).

> "Communications equipment 12 may establish the voice and text session during the setup of the initial call, when a **degradation in the quality of the voice** communications is detected"

(Mukherji at 4:67–5:3 (emphasis added)).

180. As described above, based on my review of Mukherji, Mukherji does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice as described in the proposed '838 Patent claims.

d. *Engelke '405 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.*

181. It is my opinion that Engelke '405 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

182. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration have not identified how, if at all, Engelke '405 discloses this capability. Engelke '405 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

183. In Engelke '405, a call assistant manually transcribes the hearing user's voice to text, which is inherently inconsistent and slower than automated conversion. As I mentioned earlier, "the speed of a normal human conversation," is "two to four times faster than typing" (Exhibit 1004, 5:47–50, 7:48–60.), that the speed of typing is normally 30–50 wpm (*Id.*, 2:11–21.), and normal speech is known to be upwards of 200 wpm. This results in inconsistent and unpredictable delays due to the variance in call assistant's typing speed and human attention. There can be no dispute that a call assistant manually typing a conversation could not keep up with the spoken word, let alone deliver "substantially simultaneous" captions. Therefore, Engelke '405 cannot achieve substantially simultaneous display of text words with the broadcast of the hearing user's voice. This manual process is shown in each of the figures depicting the Engelke '405 system:

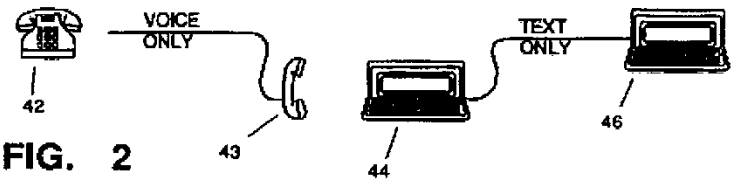


FIG. 2

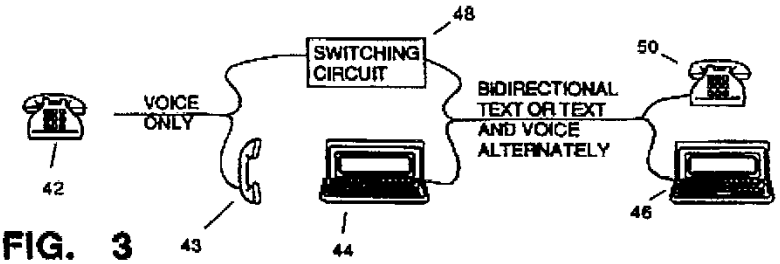


FIG. 3

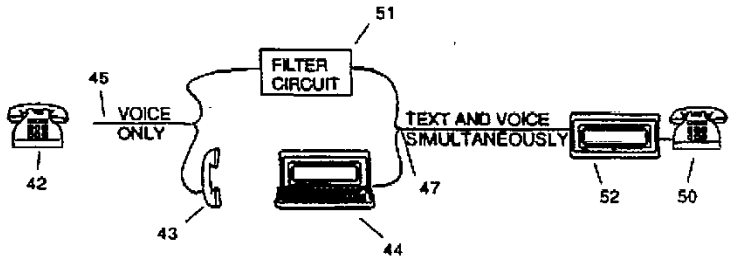


FIG. 4

184. The slow manual system of transcription described in Engelke '405, wherein a call assistant manually transcribes the hearing user's voice to text and which results in unpredictable delays due to the variance in call assistant's typing speed and human attention is further described as follows:

> "A relay, as used herein, refers to a system of voice to TDD communication which uses an operator referred to as a **call assistant who serves as an intermediate** between a hearing user on one telephone line and a deaf TDD user on a second telephone line. The **call assistant** wears a headset to communicate by voice with the hearing user and also has access So a TDD so that the call assistant can communicate with the deaf user via the TDD. Thus, the **call assistant serves as an intermediary** between the deaf person and the hearing person so as to, in effect, **translate from voice** to digital electronic forms of communication."

(Engelke '405 at 1:64–2:8 (emphasis added)).

> "When the set-up is completed, **the hearing user speaks and the call assistant types the words** spoken by the hearing user into the TDD at the relay."

(Engelke '405 at 5:16–18 (emphasis added)).

> "The **call assistant types** at the TDD 44, placing data communications on a second telephone line between the relay and the hard of hearing user who is at the telephone 50."

(Engelke '405 at 6:32–35 (emphasis added)).

185. During his deposition, Mr. Occhiogrosso was even asked—and admitted—that Engelke '405 does not disclose displaying text substantially simultaneous with voice. (Ex. 2093, 32:3–33:4 ("Q. This paragraph states that voice and text are carried simultaneously on telephone line 47, but does not indicate that a given voice word and its associated text data are being transmitted at the same time; is that correct? . . . I would have to suggest that you are -- in my opinion, you are correct.")). Thus, Mr. Occhiogrosso agreed that the teachings of Engelke '405 is text and words that are not synchronized at all (i.e., it is not the same text word and voice word being transmitted at the same time). *See Id.* In addition Engelke '405 does not teach broadcasting voice from once source that is substantially simultaneous with the display of text from a different source, which is what claims 33 and 35 recite.

186. Furthermore, at one point in his declaration, Mr. Occhiogrosso explicitly states that the '842 Patent, which shares a specification with Engelke '405, teaches the transmission of voice and text without regard to synchronicity. (Ex. 1019 ¶ 60).

187. As described above, based on my review of Engelke '405, Engelke '405 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice as described in the proposed '838 Patent claims.

e. ***Engelke '482 does not disclose, in any viable mode, substantially simultaneous display of text words with the broadcast of the hearing user's voice.***

188. It is my opinion that Engelke '482 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice.

189. I have reviewed the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration, and it is my opinion that the Petitioner's Opposition and Mr. Occhiogrosso's Supplemental Declaration appear to focus on the teachings of Engelke '405 when discussing the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Petitioner and Mr. Occhiogrosso perform virtually zero analysis regarding whether Engelke '405 could be combined with any other reference to disclose Claim 30 when you include the "substantially simultaneously" limitation. (*See* Exhibit 1019, ¶¶ 62.) Despite this omission, in an

abundance of caution, I have reviewed Engelke '482 and it is my opinion that neither Engelke '482 alone nor Engelke '482 combined with Engelke '405 would disclose the substantially simultaneous display of text words with the broadcast of the hearing user's voice.

190. There has been no assertion by Petitioner or Mr. Occhiogrosso that Engelke '482 teaches the hearing users voice is transmitted or broadcast to the assisted user. In short, Engelke '482 is not a voice and text system at all, let alone one that is "substantially simultaneous."

191. Also, in Engelke '482, when the switch is set to the assistant call's voice being sent to the hearing user, no text is sent to the assisted user's device for display, even if the hearing user is speaking, which is contrary to '838's teaching. Additionally, in this switch setting, the call assistant is not even transcribing the hearing user's voice, let alone substantially simultaneously. In other words, there is not only potential delay, but also likely loss of text of the hearing user's voice, as described in the specification:

> "Since the voice of the call assistant serves two different functions in the operation of this system, the signal on the call assistant's voice must be switched so that the hearing user 32 only hears the voice for the communications which are intended to be directed to that person. The **switch 52 allows for the voice of the call assistant only to be directed to the hearing person** at the appropriate times."

(Engelke '482 at 7:410 (emphasis added)).

> "3. A method as claimed in claim 1 further comprising a switch to switch the relay between one mode in which the voice of the call assistant is transmitted to the computer and another mode in which the **voice of the call assistant is not transmitted to the computer but is instead transmitted over the telephone system to the hearing person**."

(Engelke '482 at Claim 3 (emphasis added)).

192. As described above, based on my review of Engelke '482, Engelke '482 does not disclose substantially simultaneous display of text words with the broadcast of the hearing user's voice as described in the proposed '838 Patent claims.

4. No combination of the cited prior art references discloses the "substantially simultaneously" display of the claimed invention

193. As shown above, none of the cited prior art references disclose, in any viable mode, substantially simultaneous display of text words with the broadcast of

the hearing user's voice. Even assuming that a POSA might combine Engelke '405 with one of these other references, the deficiencies of Engelke '405 would still be present in the combination—a call assistant would manually transcribes the hearing user's voice to text. Such a process, even when implemented in the context of an obviousness combination would be inherently inconsistent and slower than automated conversion. This would results in inconsistent and unpredictable delays due to the variance in call assistant's typing speed and human attention. And would result in a device wherein the text is not displayed "substantially simultaneously" with the hearing user's audio. Therefore, no combination of the cited prior art references discloses, in any viable mode, substantially simultaneous display of text words with the broadcast of the hearing user's voice.

F. A person of ordinary skill in the art would not be motivated to combine the prior art.

194. It is my opinion that a person of ordinary skill in the art would not be motivated to combine the cited prior art references for various reasons, on which I elaborate below.

1. Liebermann teaches away from captioning.

195. The '838 Patent mandates that the relay send text to the assisted user – text ONLY. Liebermann, on the other hand, teaches away from providing text to the assisted user, advocating using sign language instead.

> "Processing rapidly received written information is not always effective with those who have been profoundly deaf for extended periods of time."

(Liebermann at 1:47–49 (emphasis added)).

> "However, **it is still required that the deaf person be able to type effectively** and to readily comprehend the written message being received."

(Liebermann at 1:55–57 (emphasis added)).

> "Deaf persons generally are well schooled in the use of finger and hand signing to express themselves, and this signing may be coupled with facial expression and/or body motion to modify the words and phrases which are being signed by the hands and to convey emotion. As used herein, "signing motions" include finger and hand motions, body motions, and facial motions and expressions to convey emotions or to modify expressions generated by finger and hand motions. A **written message being received on a teletype machine or computer may not convey any emotional content** that may have been present in the voice of the person conveying the message."

(Liebermann at 1:58–2:2 (emphasis added)).

> "The **TTY itself leaves much to be desired**, since their sign language is a modified syntax of the spoken language, resulting in a smaller vocabulary and lessened ease of reading printed text as a whole (e.g. definite and indefinite articles ["the", "a",

"an"] are omitted most of the time and possessives and plurals are not usually distinguished."

(Liebermann at 2:5–11 (emphasis added)).

2. ***Petitioner's Expert's Understanding of Liebermann Reference Is Inconsistent***

196. As mentioned above, I have reviewed the deposition transcript of Benedict Occhiogrosso in this matter. As I have alluded to throughout this declaration, it is my opinion that Mr. Occhiogrosso fundamentally misunderstands the Liebermann reference and that his understanding is irreconcilable with the teachings of the reference.

197. After reading Mr. Occhiogrosso's deposition testimony, it appears that Mr. Occhiogrosso believes that the textual data created at the central office would only be sent to the assisted user and would not be sent to the hearing user. This understanding is never stated in Liebermann and is directly contrary to what actually is disclosed in Liebermann. In particular, Figure 2 shows that the line connecting (1) center, (2) hearing caller, and (3) deaf person allows textual data and voice to be comingled among the three:

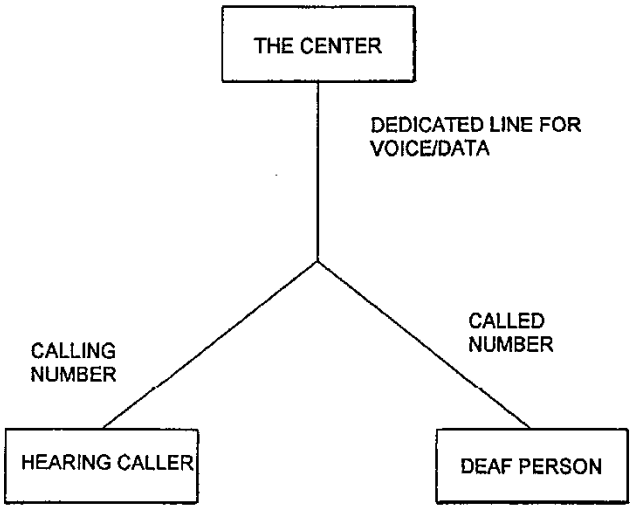


FIG. 2

198. All of the testimony given by Mr. Occhiogrosso is inconsistent with Figure 2 of Liebermann, which clearly indicates that voice and data can be transmitted to both the hearing caller and the deaf person.

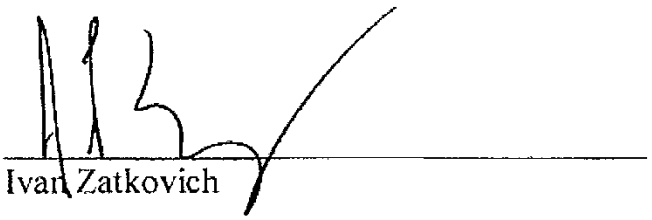
199. Mr. Occhiogrosso's opinion is also directly at odds with the specification of the Liebermann patent which clearly states: "Thus, the line between the normally hearing person and the deaf person is analog for voice content only, while the line between the deaf person (and now the normally hearing person too) is analog but transfers both voice and data." (Liebermann at 7:5–10.) That is, "the line between the deaf person and now the normally hearing person too is analog but transfers both voice and data." (*Id.* (emphasis added).)

200. Despite the clarity of this text, Mr. Occhiogrosso refused to admit during his deposition that the analog connection transfers both voice and data. (Exhibit 2093, 70:22–71:5.)

201. Because Liebermann specifically states that the hearing user would be on a line that "transfers both voice and data," it is clear that whatever the architecture actually is (two-line or conference/party call), Liebermann contemplates a lack of transparency, that the hearing user would be aware of the presence of a captioning relay, and teaches away from the isolation element [F] of claims 33 and 35.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of title 18 of the United States Code.

Dated: March 11, 2016



Ivan Zatkovich