

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC. and
CENTRAL SECURITY GROUP – NATIONWIDE, INC.,¹
Petitioners,
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner.

Case IPR2019-01335

Patent 8,064,935 B2

REQUEST FOR DIRECTOR REVIEW

¹ Central Security Group – Nationwide, Inc., who filed a petition in IPR2019-01609, has been joined as a petitioner in this proceeding.

The Patent Trial and Appeal Board issued a final written decision in Inter Partes Review No. IPR2019-01335 on January 26, 2021, finding claims 1-11 and 13-22 of U.S. Patent No. 8,064,935 unpatentable. Patent Owner timely appealed this decision. On March 1, 2022, the Federal Circuit issued an order remanding the case to allow Patent Owner thirty days to request Director rehearing. Patent Owner hereby requests Director Review of the Board's final written decision that (1) independent claims 18 and 21, and dependent claims 3 and 14, are unpatentable over U.S. Patent No. 6,275,710 ("Oinonen") in view of WIPO Pub. No. 99/49680 ("Whitley"); and (2) independent claims 20 and 22 are unpatentable over Oinonen in view of Whitley and U.S. Pub. 2002/0177428 ("Menard").

I. The Board Erred by Finding that Oinonen and Whitley Disclosed the Claimed "Microcontroller"

Independent claims 18 and 21 recite the term "microcontroller," as do dependent claims 3 and 14. For example, claim 18 recites "a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device." Ex. 1001 at 15:5-8. The Board erred by finding that the microprocessors disclosed in Oinonen and Whitley satisfied the "microcontroller" requirement of these claims.

A. The Proper Construction of "Microcontroller"

As of the '935 patent's priority date in November 2004, a POSITA would have understood that a microprocessor was very different from a microcontroller

and considered the differences significant. Ex. 2004, ¶34.

Microprocessors are often described as the “heart” of a computer rather than as a computer unto itself because microprocessors within a computer are typically accompanied by numerous other supporting integrated circuits, such as external circuits for performing functions (e.g., memory chips, network communications, clocking, and input/output communications). Ex. 2004, ¶36. This is reflected in the definition of “microprocessor” provided by the Microsoft Computer Dictionary:

A central processing unit (CPU) on a single chip. A modern microprocessor can have several million transistors in an integrated-circuit package that can easily fit into the palm of one’s hand.

Microprocessors are the heart of all personal computers. When memory and power are added to a microprocessor, all the pieces, excluding peripherals, required for a computer are present.

Ex. 2006, Microsoft Computer Dictionary, Fifth Edition (2002).

In contrast, microcontrollers are meant to provide simpler, but complete and cheaper, solutions to a particular logical-processing tasks. Ex. 2004, ¶39. While a microcontroller is generally lower in performance than a microprocessor, microcontrollers typically include other components, such as main memory (ROM and/or RAM), that would not be included within a microprocessor. Ex. 2004, ¶40; Ex. 2015 at 53:8-54:2, 91. Microcontrollers are typically used as low-cost solutions to meet modest design goals with low technical investment. Microcontrollers

generally range in price from pennies to several dollars, while microprocessors range in price from tens to hundreds of dollars. Ex. 2004, ¶40.

Thus, whereas microprocessors are the heart of a computer, a microcontroller is a computer unto itself. Ex. 2004, ¶41. This is reflected in the Microsoft Computer Dictionary's definition of "microcontroller":

A special-purpose, single-chip computer designed and built to handle a particular, narrowly defined task. In addition to the central processing unit (CPU), a microcontroller usually contains its own memory, input/output channels (ports), and timers. When part of a larger piece of equipment, such as a car or a home appliance, a microcontroller is an embedded system.

Ex. 2006 (emphasis added); *see also* Ex. 2015 at 58:4-66:16.

The Microsoft Dictionary's definition is consistent with that provided by another technical dictionary published in the relevant timeframe:

An integrated circuit chip that is designed primarily for control systems and products. In addition to a CPU, a microcontroller typically includes memory, timing circuits, and I/O circuitry. The reason for this is to permit the realization of a controller with a minimal quantity of chips, thus achieving maximal possible miniaturization. This in turn, will reduce the volume and the cost of the controller. The microcontroller is normally not used for general-

purpose computation as is a microprocessor.

Ex. 2007 (emphasis added); *see also* Ex. 2004, ¶43; Ex. 2015 at 70:1-75:2.

The microcontroller disclosed in the '935 patent for use with the base unit is consistent with the understanding of “microcontroller” described above. Ex. 2004, ¶46. Figure 4 “is a block diagram of the base control unit of the system of FIG. 1.”

Ex. 1001 at 3:44-45. A POSITA would have understood that Figure 4 shows a fairly sophisticated microcontroller given the variety of subsystems with which it interacts. Ex. 2004, ¶46. A POSITA would further have understood that the base unit’s microcontroller

includes I/O circuitry, memory circuits, and timing circuits to interact with the subsystems since no external circuitry providing this functionality is shown between the microcontroller and the subsystems. *Id.* This is consistent with typical microcontrollers known in the art at the time. *Id.*

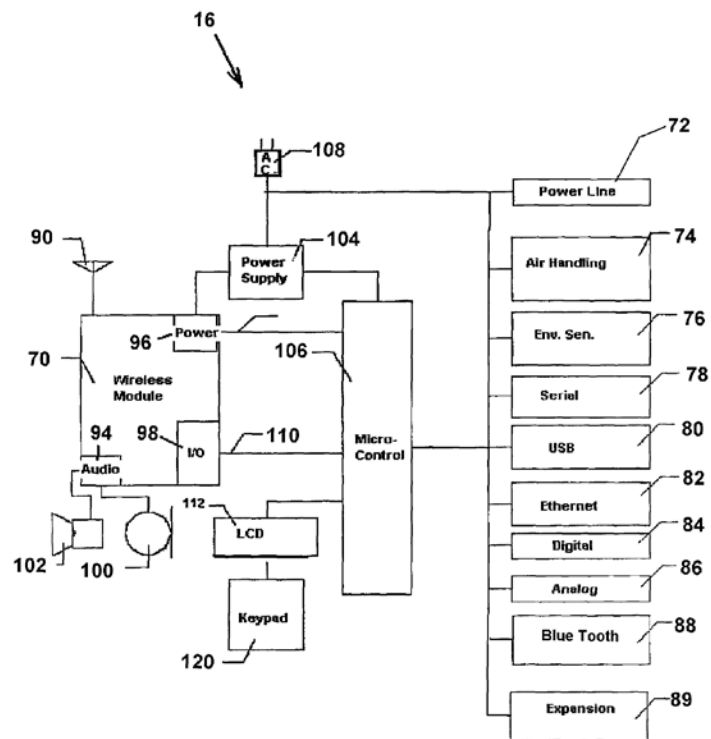


Fig. 4

Furthermore, the base unit’s microcontroller is not a general-purpose

processor capable of performing functions unrelated to the disclosed invention. It is specifically designed and then programmed for “remote control and remote monitoring of the various subsystems within the residential environment.” Ex. 1001 at 4:62-66. Again, this is consistent with microcontrollers, which, as reflected in the Microsoft Dictionary’s definition of “microcontroller,” are typically designed and then programmed for particular tasks. Ex. 2006; Ex. 2004, ¶47.

Based on the ’935 patent’s disclosure and ordinary meaning, a POSITA would have understood the term “microcontroller,” as used in the ’935 patent’s claims, to mean “a special-purpose computing device including at least a CPU, main memory, timing circuits, and I/O circuitry designed for a minimal quantity of chips and then programmed to handle a particular task.” Ex. 2004, ¶48.

Consistent with Patent Owner’s construction, Petitioners’ expert testified that a microcontroller “is a small, you know, embedded processor and memory and I/O, a little teeny computer.” Ex. 2015 at 55:9-18. Petitioners’ expert further testified that he agreed that “in addition to a CPU, a microcontroller typically includes memory, timing circuits, and I/O circuitry.” Ex. 2015 at 74:21-75:2. He specifically referred to I/O circuitry as “a central component” of a microcontroller. Ex. 2015 at 73:19-74:8. Petitioners’ expert further testified that microcontrollers “typically are programmed to handle a narrowly-defined task,” consistent with Patent Owner’s construction (and not Petitioners’). Ex. 2015 at 64:22-65:16.

Petitioners' expert also contrasted microcontrollers from microprocessors, saying that a microprocessor only becomes a computer (and therefore a microcontroller) when associated with memory and I/O circuitry. Ex. 2015 at 68:3-18. Further, Petitioners' expert testified that "the microcontroller is more of a system, a small system, whereas the microprocessor would be just a component of the system." Ex. 2015 at 55:9-56:14. This agrees with Patent Owner's assertion, reflected in its proposed construction that, unlike a microprocessor, a microcontroller is a computer unto itself.

The Board nonetheless construed "microcontroller" to mean "a microcomputer, microprocessor, or other equipment used for process control." Paper 38 at 13. In doing so, the Board erred by disregarding that *both* Ubiquitous's and Petitioners' experts agreed that a POSITA would understand that a microcontroller is more than a bare microprocessor. The Board did not explain why it did not credit the testimony of even Petitioners' expert.

Instead, the Board's analysis focused on its decision to discount the dictionaries cited by Patent Owner. The Board noted that these dictionaries indicated that, among other things, a microcontroller "usually contains its own memory, input/output channels (ports), and timers" (Microsoft Computer Dictionary) and "In addition to a CPU, a microcontroller typically includes memory, timing circuits, and I/O circuitry" (Comprehensive Dictionary of

Electrical Engineering). While the Board determined that the use of the terms “usually” or “typically” meant that a microcontroller could refer to a bare microprocessor (Paper 38 at 13), the Board made too much of these qualifiers. These dictionaries distinguish microcontrollers from microprocessors. Ex. 2006; Ex. 2007. A microcontroller is more than just merely a microprocessor. The dictionaries’ use of “usually” or “typically” indicates that a microcontroller typically includes *all* of the additional components (e.g., memory, timing circuits, and I/O circuitry). Ex. 2006; Ex. 2007. The dictionaries say nothing to suggest that a bare microprocessor constitutes a microcontroller.

Moreover, while the Board accepted Petitioners’ accusation that Patent Owner “cherry-picked” its dictionary definitions (Paper 38 at 11), the Board adopted a watered-down version of the sole dictionary first cited in Petitioners’ reply brief. Paper 38 at 13; Paper 27 at 5-6. Thus, the Board followed Petitioners in cherry-picking a single definition that their own expert contradicted. Moreover, the Board’s construction goes even further than Petitioners’ standalone dictionary, omitting the aspect of Petitioners’ definition requiring that a microcontroller be “used for precise process control in data handling, communication, and manufacturing and substituting in the phrase “used for process control”). *Id.* This aspect of Petitioners’ dictionary definition omitted by the Board agrees with Patent Owner’s assertion (and Petitioners’ expert’s admission) that a “microcontroller,”

unlike a microprocessor, is programmed to handle a particular task.

In crediting a sole dictionary, offered for the first time in reply, over all the competing evidence, the Board erred. As the Federal Circuit has stated, in view of the reality that “different dictionaries may contain somewhat different sets of definitions for the same words,” “[a] claim should not rise or fall based upon the preferences of a particular dictionary editor, or the court’s independent decision, uninformed by the specification, to rely on one dictionary rather than another.”

Phillips v. AWH Corp., 415 F.3d 1303, 1322 (Fed. Cir. 2005). That is particularly true given that “the authors of dictionaries or treatises may simplify ideas to communicate them most effectively to the public and may thus choose a meaning that is not pertinent to the understanding of particular claim language.” *Id.* Thus, “[t]he resulting definitions therefore do not necessarily reflect the inventor’s goal of distinctly setting forth his invention as a person of ordinary skill in that particular art would understand it.” *Id.* Here, the Board fell into the trap *Phillips* identified by ignoring the weight of the evidence, including two dictionaries and both sides’ experts, in favor of a single outlier dictionary definition.

This is particularly egregious since the Board’s overly broad construction eviscerates the patentee’s specific choice to recite the more general “controller” in some claims and the more specific “microcontroller” in other claims. The Board provide no justification for departing from the general principle that “different

claim terms are presumed to have different meanings.” *Helmsdorfer v. Bobrick Washroom Equip.*, 527 F.3d 1379, 1381-82 (Fed. Cir. 2008). This was error.

B. Neither Oinonen Nor Whitley Disclose a Microcontroller

Claim 18 recites that the claimed base unit includes “a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device.” Ex. 1001, 15:5-8. Independent claim 21 includes a similar recitation. *Id.* at 16:18-22. Dependent claims 3 and 14 also recite a microcontroller. Neither Oinonen nor Whitley discloses the claimed microcontroller under a proper construction. The Board’s decision finding that Oinonen and Whitley disclose a microcontroller expressly depended on the Board’s erroneous construction. Paper 38 at 32.

The Board pointed to Oinonen’s disclosure of a microprocessor as satisfying the “microcontroller” element. Paper 38 at 31. As discussed above regarding claim construction, a POSITA would not have understood that the claimed “microcontroller” is a generic processor. A microcontroller includes onboard circuitry that a microprocessor does not contain. A generic microprocessor does not meet the standard understanding of microcontroller because it does not necessarily include main memory, timing circuits, or I/O circuitry, nor is a generic microprocessor designed for a particular task, nor is it specifically intended to function with a minimal quantity of chips. Ex. 2004, ¶¶ 48, 90.

The Board similarly erred in accepting Petitioners' argument that Whitley teaches the claimed microcontroller by disclosing "a processor, such as an Intel 386 or 486 processor." Paper 38 at 32. A microprocessor is not a microcontroller because it is not a computer in and of itself programmed for a particular task. Whitley's Intel 386/486 processors are prime examples of microprocessors. Ex. 2004, ¶96. They are not "a special-purpose computing device including at least a CPU, main memory, timing circuits, and I/O circuitry designed for a minimal quantity of chips and then programmed to handle a particular task." *Id.*

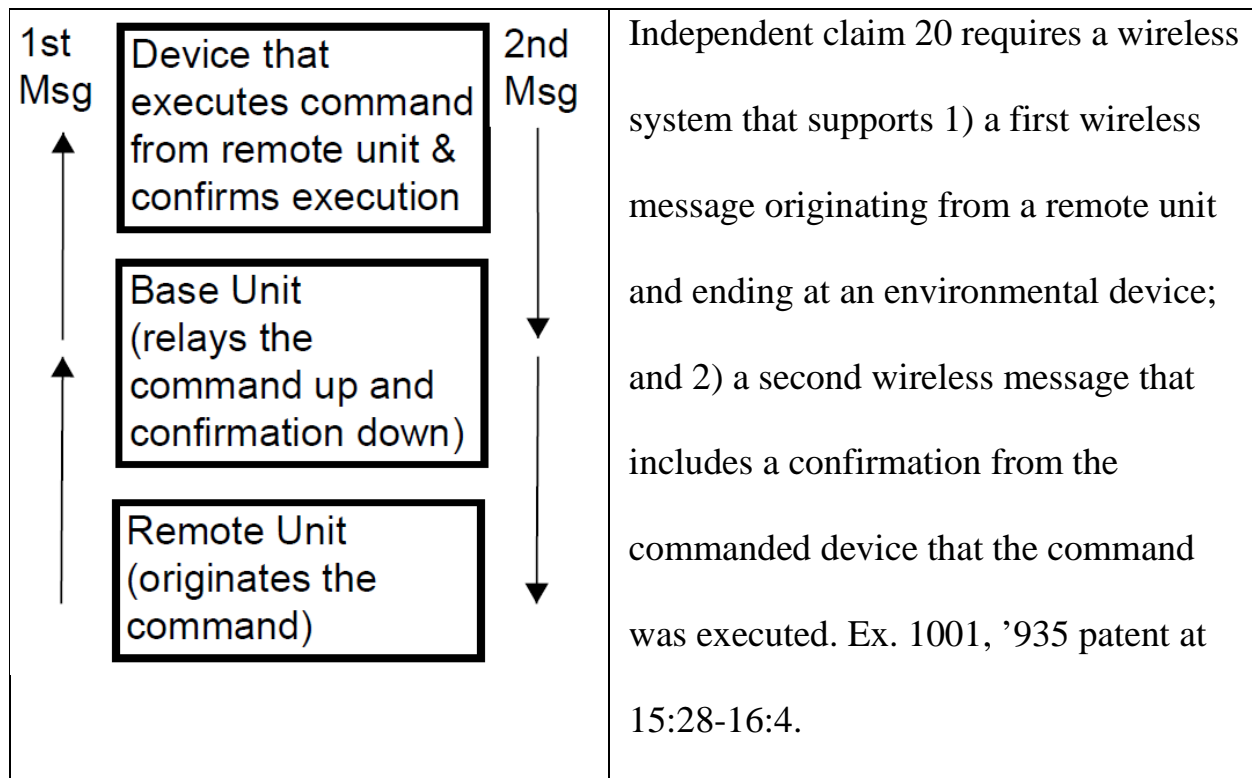
Since neither Oinonen nor Whitley discloses a microcontroller, the Board erred in finding claims 3, 14, 18, and 21 unpatentable.

II. The Board Erred in Finding Claims 20 And 22 Unpatentable Over Oinonen, Whitley, and Menard

The Board erred in finding that independent claims 20 and 22 are unpatentable as being obvious over Oinonen in view of Whitley and Menard.

Independent claim 20 calls for a wireless system that supports a first wireless message and a second wireless message as described below. Independent claim 22 calls for a base unit that 1) supports relaying a control message with control information from the remote unit to an environmental device via a control command; and 2) sends a status message indicating execution of the control information by the environmental device back to the remote device. Ex. 1001, at 16:23-38. Claim 20 recites two messages analogous to these recited in claim 22,

and the arguments regarding Menard apply to both independent claims.



Neither of the two passages from Menard that Petitioners cited teaches a system that supports this pair of messages. Ex. 2004, ¶126. The first passage, Paragraph [0068], describes Menard's Figure 2. Figure 2 describes how the "system 50" (a third-party alarm monitoring system) responds to an alarm signal.

As Figure 2 shows, when the monitoring service receives an alarm signal, it notifies all responsible parties ("RPs"), such as a homeowner, at step 250. Ex. 1020 at Fig. 2. It further discloses that when RPs or other users respond, the "system executes further notification, dispatching, data processing or other actions based upon executing instructions received." *Id.* Figure 2 indicates that the further notification or processing is based on the *system* (i.e., the third-party monitoring

service) executing instructions, not the environmental device, or any other commanded device. Ex. 2004, ¶ 128.

Petitioners' expert agreed that step 290 of Figure 2 references the *system* executing instructions. Ex. 2015 at 170:19-173:11. Therefore, Figure 2 does not disclose the system sending notifications ("a second wireless message") confirming that the *environmental device* has executed the conveyed instructions. More broadly, Figure 2 does not show any device external to system 50 confirming execution of a command. Ex. 1020 at Fig. 2. Since Petitioner (correctly) did not assert that system 50 constitutes an environmental device, Menard fails to disclose this aspect of claims 20 and 22.

This distinction between Menard and Patent Owner's claims 20 and 22 is illustrated in the example given in Menard's Paragraph [0077]. This paragraph describes an embodiment illustrated in Figure 7 regarding the processing of an alarm signal from a home. It says that "with a home alarm system, the procedure at 250 may include simultaneously notifying, and seeking responses from, both spouses at their respective cell phones, work phones, e-mails, and fax numbers in addition to the home telephone." Ex. 1020 at [0077].

After an RP provides a response, the monitoring service then notifies all RPs of the outcome of the processing by the monitoring service. *Id.* Thus, the only "further notifications" that Menard discloses relate to what the *monitoring service*

does, not what is done by any commanded device beyond the monitoring service.

Neither Figure 2 nor Paragraph [0068] discloses that the monitoring service sends a notification based on the alarm system, or any other device, performing some command from remote users. Therefore, Menard's Paragraph [0068] does not disclose the present limitation of '935 patent claims 20 or 22. Ex. 2004, ¶131.

The same is true of Menard's Paragraph [0179]. Again, Menard does not obtain information from the commanded device, such as the environmental device, indicating that the commanded device has executed the command. Thus, Menard does not teach supporting "a second wireless message to the remote unit, wherein the second wireless message includes information indicating that the command has been executed." Ex. 1001, '935 patent at 16:2-4.

Menard's shortcoming on this point is not surprising. Petitioners identified nothing in Menard showing that its third-party monitoring service has any knowledge about whether the alarm system in a monitored home executes any particular command. Menard's disclosures are consistent with systems available at the time of Menard's filing. Ex. 2004, ¶133. Specifically, then-current alarm systems employed relatively simple mechanisms for detecting the existence of a condition (*e.g.*, door is open) and communicating with another system (*e.g.*, notifying a central office). *Id.* Such systems used a human to determine whether the alarm needed further attention. Ex. 2004, ¶134. Any confirmation message

arising from the conclusion of that investigation would emanate from the central office (like Menard) rather than the alarm device in the home. *Id.*

The Board found that Patent Owner improperly attacked the teachings of the individual references rather than their combined teachings. *See* Paper 38 at 47. But in explaining its reasoning, the Board failed to give credence to the actual claim language. The Board concluded that, “when combined with Oinonen and Whitley, Menard teaches transmitting, via the transmitter in Oinonen’s TE1 and Whitley’s gateway 20, a message indicating when a received command has been executed.” Paper 38 at 48. But claim 20 and claim 22 are more specific. They require sending a message indicating that the environmental device has executed a command. None of the cited references, including Menard, discloses that feature.

Thus, the Board conducted an improper obviousness analysis. A patent is obvious if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention. *See In re: Zurko*, 258 F.3d 1379, 1383 (Fed. Cir. 2001)). Courts must avoid “hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Since none of the cited references actually taught the claim language, the Board effectively found that “common sense” or “ordinary creativity” would fill the gaps. However, the Federal Circuit has stated that “common sense is typically invoked to provide a known *motivation*

to combine, not to supply a missing claim limitation.” *Arendi v. Apple*, 832 F.3d 1355, 1361 (Fed. Cir. 2016). This Court has held that when the Board resorts to gap-fillers like “ordinary creativity” or “common sense,” it calls for a “‘searching’ inquiry.” *DSS Tech. Mgmt. v. Apple*, 885 F.3d 1367, 1375 (Fed. Cir. 2018).

In *In re Zurko*, the Federal Circuit reversed the Board’s determination that a claim was obvious based on common sense. *In re Zurko*, 258 F.3d 1379, 1385-86 (Fed. Cir. 2001). The Board committed the same error here. The Board engaged in no searching inquiry to justify its conclusion. Nor did the Board identify any motivation that would prompt a POSITA to modify the cited references to include the missing claim element. Thus, the Board’s finding was conclusory and improperly based on hindsight, using Patent Owner’s claims as a road map.

III. Conclusion

For the reasons above, Patent Owner respectfully requests that the Director review and vacate the final written decision. Moreover, under *Arthrex*, this review cannot be performed by Mr. Hirshfeld, who currently holds the title of “performing the functions and duties of the Under Secretary of Commerce for Intellectual Property and Director of the USPTO.” Though Mr. Hirshfeld holds that interim title with the utmost integrity, skill, and experience, “[o]nly an officer properly appointed to a principal office may issue a final decision binding the Executive Branch...” *United States v. Arthrex, Inc.*, 141 S. Ct. 1970 (June 21, 2021).

Respectfully submitted,

Date: March 29, 2022

/Cortney S. Alexander/
Cortney S. Alexander
Reg. No. 54,778
KENT & RISLEY LLC
5755 N Point Pkwy Ste 57
Alpharetta, GA 30022
Phone: 404-855-3867
Fax: 770-462-3299
Email: cortneyalexander@kentrisley.com

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the above document was served on March 29, 2022, by filing this document through the Patent Trial and Appeal Board End to End system as well as delivering a copy via electronic mail to Director_PTABDecision_Review@USPTO.gov and upon the following attorneys of record for Petitioners:

S. Benjamin Pleune (ben.pleune@alston.com)
Christopher T.L. Douglas (christopher.douglas@alston.com)
Adam J. Doane (adam.doane@alston.com)
Alston & Bird LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel: 704.444.1000
Fax: 704.444.1111

Joshua Griswold
Bret Winterle
Fish & Richardson P.C.
3200 RBC Plaza
60 South Sixth Street
Minneapolis, MN 55402
Tel: 202-783-5070
Fax: 877-769-7945
griswold@fr.com
winterle@fr.com
PTABInbound@fr.com
IPR41313-000001IP1@fr.com

Anita M. C. Spieth
Peter A. Flynn
Stephanie Schonewald
Choate Hall & Stewart

Two International Place
Boston, MA 02110
Tel: (617) 248-5000
Fax: (617) 248-4000
aspieth@choate.com
pflynn@choate.com
sschonewald@choate.com

/Cortney S. Alexander/
Cortney S. Alexander
Reg. No. 54,778
Kent & Risley LLC
5755 N Point Pkwy Ste. 57
Alpharetta, GA 30022
Phone: 404-855-3867
Fax: 770-462-3299
Email: cortneyalexander@kentrisley.com