

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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VANGUARD PRODUCTS GROUP, INC., D/B/A VANGUARD PROTEX  
GLOBAL

Petitioner

v.

INVUE SECURITY PRODUCTS, INC.

Patent Owner

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Case No.: IPR2020-00069  
U.S. Patent No. 10,043,358

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**PATENT OWNER'S PRELIMINARY RESPONSE  
UNDER 37 C.F.R. § 42.107**

## TABLE OF CONTENTS

Table of Authorities .....	iv
List of Patent Owner Exhibits.....	vi
I. Introduction.....	1
II. Level of Ordinary Skill in the Art.....	2
III. Claim Construction .....	5
IV. The Petitioner Has Failed to Establish the Obviousness of Any of the Challenged Claims .....	8
A. The Petition Should Be Denied As Failing to Provide Evidence a POSA Would Combine Grant and Marszalek or Would Have a Reasonable Expectation of Success in Doing So (Grounds 1 and 2).....	9
B. The Petition Should Be Denied As Failing to Provide Evidence a POSA Would Combine Brenner and Marszalek or Would Have a Reasonable Expectation of Success in Doing So (Grounds Three and Four).....	13
C. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Grant, Marszalek, and Wheeler (Grounds One and Two).....	18
D. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Grant and Vogt (Ground Two).....	22
E. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Brenner, Marszalek, and Wheeler (Grounds Three and Four) .....	25
F. The Petition Should Be Denied for Failing to Provide a Reasonable Rationale for the Combination of Brenner and the ‘730 Publication (Ground Four) .....	29
i. The Board has already rejected this identical argument and issue preclusion should ultimately be applied to prevent its rehearing. ....	31
ii. Brenner teaches the feasibility of using an optical waveguide for communication in a retail security devices.....	34

iii. Petitioner fails to provide a reasonable rationale for replacing Brenner's optical waveguide.....	36
iv. The state of the art demonstrates that waveguides are reliable in applications involving bending. ....	42
V. CONCLUSION .....	45

## TABLE OF AUTHORITIES

### Cases

<i>B &amp; B Hardware, Inc. v. Hargis Industries, Inc.</i> , 135 S. Ct. 1293 (2015).....	31
<i>Cuozzo Speed Technologies, LLC v. Lee</i> , 136 S. Ct. 2131 (2016) .....	5, 33
<i>Daiichi Sankyo Co. v. Apotex, Inc.</i> , 501 F.3d 1254 (Fed. Cir. 2007) .....	3, 4
<i>Ex Parte Burns</i> , 2017 Pat. App. LEXIS 4994 (PTAB May 1, 2017) .....	20, 24, 27
<i>Ex parte Chandrachood</i> , 2015 Pat. App. LEXIS 1378 (PTAB Mar. 9, 2015) 20, 25,	27
<i>Ex parte Hiyamizu</i> , 10 USPQ2d 1393 (Bd. Pat. App. & Inter. 1988) .....	3
<i>In re Fritch</i> , 972 F.2d 1260 (Fed. Cir. 1992) .....	21, 29
<i>In re Kahn</i> , 441 F.3d 977 (Fed. Cir. 2006) .....	21, 28
<i>In re Paulsen</i> , 30 F.3d 1475 (Fed. Cir. 1994) .....	6
<i>In re Suitco Surface, Inc.</i> , 603 F.3d 1255 (Fed. Cir. 2010) .....	5
<i>In re Translogic Tech., Inc.</i> , 504 F.3d 1249 (Fed. Cir. 2007) .....	5
<i>Kinetic Concepts, Inc. v. Smith &amp; Nephew, Inc.</i> , 688 F.3d 1342 (Fed. Cir. 2012) 20,	24, 27, 30
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007) .....	9, 25
<i>Microsoft Corp. v. Proxyconn, Inc.</i> , 789 F.3d 1292 (Fed. Cir. 2015) .....	6
<i>Ormco Corp. v. Align Technology, Inc.</i> , 463 F. 3d 1299 (Fed. Cir. 2006).....	37

Case No. IPR2020-00069

Patent No. 10,043,358

*Papst Licensing Gmbh & Co. KG v. Samsung Electronics America, Inc.*, 924 F.3d

1243 (Fed. Cir. 2019).....31

*Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987 (Fed. Cir. 2017)... 9, 23, 25

*TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352 (Fed. Cir. 2019)..... 22, 23

## **Statutes**

35 U.S.C. § 314(a) .....9, 42

37 C.F.R. § 42.100(b) .....5

## **Other Authorities**

MPEP § 2141.03 .....3

**List of Patent Owner Exhibits**

<b>Exhibit No.</b>	<b>Description</b>
<b>2001</b>	Declaration of Thomas Blackburn (“Blackburn Decl.”)
<b>2002</b>	Declaration of Eric R. Pearson (“Pearson Decl.”)
<b>2003</b>	U.S. Publication No. US2006/0045449 (“Varner”)
<b>2004</b>	U.S. Patent 7,349,610 (“Ohsono”)
<b>2005</b>	Martin H. Weik, <u>Fiber Optics Standard Dictionary</u> (1989)
<b>2006</b>	S1500 Recoiler Drawings
<b>2007</b>	U.S. Patent No. 7,272,289 (“Bickham”)
<b>2008</b>	U.S. Patent No. 7,680,381 (“Bookbinder”)
<b>2009</b>	U.S. Patent No. 8,698,618 (“Henson”)

## **I. INTRODUCTION**

The Board should deny institution of the Petition for *Inter Partes* Review of U.S. Patent No. 10,043,358 (“Petition”). For each of the four grounds advanced, Petitioner fails to present evidence showing a person of ordinary skill in the art (POSA) would combine the prior art as described by Petitioner.

For all four grounds asserted, Petitioner provides no evidence a POSA would make Petitioner’s proposed combinations of prior art or would have a reasonable expectation of success in doing so. Petitioner asserts that a POSA would use an adapter cable to transfer power from a peripheral sensor of Marszalek to an auxiliary device, but Petitioner cannot show that a POSA would understand that such power is even available from the peripheral sensor.

For all four grounds asserted, Petitioner proposes a POSA would add Wheeler for purposes of securing two or more articles of merchandise. However, a POSA would not make such a combination because it would be redundant – i.e. Petitioner’s addition of Wheeler is to a combination Petitioner admits already secures two or more articles of merchandise.

For Ground 2, Petitioner asserts a POSA would modify a reference (Grant) because it “could potentially be improved.” However, Petitioner fails to identify how Grant is improved or otherwise provide evidence of why a POSA would combine the references in the way the claimed invention does. Regardless, a

POSA would not make the proposed combination with Grant because such would be redundant.

As to Ground 4, Petitioner proposes modifying Brenner by replacing elements it deems unreliable. But this identical argument has been advanced by Petitioner in prior IPRs and the Board has already rejected it as unsupported and contrary to the cited art.

For at least these reasons, Patent Owner respectfully asserts the Petition should be denied because there is no reasonable likelihood that Petitioner will prevail on any one of the challenged claims.

## **II. LEVEL OF ORDINARY SKILL IN THE ART**

A person of ordinary skill in the art (“POSA”) at the time of the effective filing date of the invention would have at least a Bachelor of Science degree in electrical engineering, mechanical engineering, materials science, or some equivalent level of education and at least some knowledge or experience with security devices, including alarms and sensors, the powering of electronic devices, and at least some knowledge or experience with applications using optical communication technology. Declaration of Thomas Blackburn. Ex. 2001 (Blackburn Decl.) at ¶ 21-22.

Petitioner proposes that a POSA would have 4-5 years of experience with merchandise security systems and a bachelor’s degree in electrical engineering.



Petition at 5. The Board should reject Petitioner's proposed level of ordinary skill for at least the following reasons.

The hypothetical person of ordinary skill in the art is determined by looking to the art "to which the claimed subject matter pertains" and then assessing "the capability of understanding the scientific and engineering principles applicable to the pertinent art." *Ex parte Hiyamizu*, 10 USPQ2d 1393, 1394 (Bd. Pat. App. & Inter. 1988); MPEP § 2141.03. A non-exhaustive list of factors that may be considered in determining the level of skill required includes: "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

First, Petitioner's proposed level of skill lacks any requirement that a POSA have any knowledge or experience with the powering of electronic devices. However, this subject matter is present in claim 1 and central to Petitioner's arguments. For example, independent claim 1 of the '358 patent requires, *inter alia*, a merchandise security system that includes "an auxiliary port that operably connects to the auxiliary device" and a base that "transfers power to the auxiliary port for powering the auxiliary device." VPG-1001 (Emphasis added). Examples of the auxiliary devices that are powered include e.g., a stylus, a speaker, a

keyboard, and Bluetooth device.

Second, Petitioner's proposed level of skill lacks any requirement that a POSA have any knowledge or experience with applications using optical communication technology. However, this subject matter is present in dependent claims 19, 20, and 23 and is central to Petitioner's arguments in challenging these claims. For example, dependent claim 19 of the '358 patent requires, *inter alia*, a cable and a sensor that "communicate optical signals with one another for detecting a security event associated with the sensor, the cable, or the item of merchandise." VPG-1001. And dependent claim 23 requires a sensor that includes "an optical transceiver for communicating optical signals with the optical transceiver of the cable." VPG-1001.

Third, Petitioner's own arguments regarding the prior art indicate that a POSA would have at least some knowledge or experience with the powering of electronic devices. As noted above, one of the factors used to assess the level of ordinary skill is how the prior art has addressed problems in the art. *Daiichi*, 501 F.3d at 1256. Petitioner repeatedly asserts that the prior art provides solutions to powering electronic devices. *See, e.g.*, Petition at 27, 62.

Fourth, Petitioner's own arguments regarding the prior art indicate that a POSA would have at least some knowledge or experience with applications using optical communication technology. For example, Petitioner asserts the prior art

provides solutions where “optical transceivers would be configured to communicate optical signals to one another.” Petition at 45.

For these reasons, Patent Owner respectfully requests that the Board adopt the following definition for the level of ordinary skill in the art: A person of ordinary skill in the art (“POSA”) at the time of the effective filing date of the invention would have at least a Bachelor of Science degree in electrical engineering, mechanical engineering, materials science, or some equivalent level of education and at least some knowledge or experience with security devices, including alarms and sensors, the powering of electronic devices, and at least some knowledge or experience with applications using optical communication technology.

### **III. CLAIM CONSTRUCTION**

The Board construes claims by applying the broadest reasonable interpretation in light of the specification. 37 C.F.R. § 42.100(b); *see also Cuozzo Speed Technologies, LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016). Under this standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007); *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010) (“[C]laims should always be read in light of the specification and teachings in the underlying patent.”).

The Board “should also consult the patent’s prosecution history in proceedings in which the patent has been brought back to the agency for a second review.” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015). The Board may not “construe claims during IPRs so broadly that its constructions are unreasonable under general claim construction principles.” *Id.* A special, unordinary meaning, when “it appears from the specification or the file history,” indicates that the claim term was “used differently by the inventor.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Such a special definition must be set forth with “reasonable clarity, deliberateness, and precision.” *Id.*

**“auxiliary device of the article of merchandise”**

Patent Owner submits that “auxiliary device of the article of merchandise” should be construed as a “device specifically designed to be used by the customer with the article of merchandise.”

The written description for the ‘358 patent states that a base “may be configured to electrically connect to an auxiliary device, such as, for example, an auxiliary device for the item of merchandise 14 on display (e.g., a stylus, speaker, keyboard, Bluetooth device, etc.).” VPG-1001 at 5:48-52. As would be understood by a POSA, each of these examples are devices that are intended for use or functioning with the article of merchandise that is being secured. Ex. 2001 (Blackburn Decl.) at ¶ 24. Additionally, a POSA would understand from these

examples that, as used in the claims of the ‘358 patent, “auxiliary devices of the article of merchandise” are not just devices that can be used at the same time as the article of merchandise nor devices required for use of the article of merchandise.

*Id.* Instead, as “of the article of merchandise” indicates, auxiliary devices are devices that are specifically designed to be used by the customer with the article of merchandise. *Id.*

Additional understanding is provided by claim 10, which refers to an auxiliary device as comprising “a stylus, speaker, a keyboard or a Bluetooth device each configured to operate with the article of merchandise.” (Emphasis added).

Furthermore, at column 6, lines 6-8, the ‘358 patent indicate: “[T]he auxiliary port 45 allows an auxiliary device to be displayed and used by a prospective customer in connection with an item of merchandise.” (Emphasis added).

Petitioner proposes that this term be construed as “an electronic device complementary to the article of merchandise.” However, “complementary” does not appear anywhere in the ‘358 patent and its prosecution history in connection with “auxiliary device.” Definitions of the word “complementary” suggest it means something that is required for completeness. Ex. 2001 (Blackburn Decl.) at ¶ 26 (referencing dictionary definitions including “serving to fill out or complete” and “mutually supplying each other’s lack”). Yet, as discussed above, the written description of the ‘358 patent provides examples of auxiliary devices (“a stylus,

speaker, keyboard, Bluetooth device, etc.”) that are not complementary and as such do not fit with these definitions. For example, where the item of merchandise is a mobile phone and the auxiliary device is a keyboard, the phone and keyboard can be used together but such do not mutually supply some deficiency in each other nor is a keyboard necessarily required for use of a mobile phone or vice versa. *Id.*

Instead of being based on the intrinsic evidence as required, Petitioner’s attempt to substitute “complementary” for “auxiliary” is driven solely by Petitioner’s desire to provide a rationale for its prior art combinations. As further discussed below, Petitioner proposes combining the Wheeler reference (VPG-1006) with other prior art on the basis that Wheeler uses the term “complementary,” which Petitioner attempts to build into claim 1 through claim construction. However, the Board should reject Petitioner’s proposed claim construction for “auxiliary device of the article of merchandise” as inconsistent with the surrounding context of the claims and the specification of the ‘358 patent.

Accordingly, Patent Owner submits that “auxiliary device of the article of merchandise” should be construed as a “device specifically designed to be used by the customer with the article of merchandise.”

#### **IV. THE PETITIONER HAS FAILED TO ESTABLISH THE OBVIOUSNESS OF ANY OF THE CHALLENGED CLAIMS**

The Board should not institute *inter partes* review because the Petitioner failed to carry its burden of showing that there is a “reasonable likelihood” that any

of the challenged claims of the '358 patent are unpatentable under 35 U.S.C. § 314(a).<sup>1</sup>

**A. The Petition Should Be Denied As Failing to Provide Evidence a POSA Would Combine Grant and Marszalek or Would Have a Reasonable Expectation of Success in Doing So (Grounds 1 and 2)**

In order to invalidate any claim for obviousness, the Petitioner must provide evidence showing a POSA would have an apparent reason to combine known elements in the fashion claimed by the patent at issue and would have a reasonable expectation of success in doing so. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 991 (Fed. Cir. 2017). The Petition should be denied because, in both Grounds 1 and 2, Petitioner fails to present evidence that a POSA would combine the adapter cable of Grant (VPG-1004) with the peripheral sensor of Marszalek (VPG-1005) or that a POSA would have a reasonable expectation of success in doing so.

More particularly, Grounds 1 and 2 of the Petition each rely on a combination that includes Marszalek (VPG-1005), Wheeler (VPG-1006), and

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<sup>1</sup> Although Patent Owner's Preliminary Response focuses on the Petition's unsupported rationales for combining the art and certain other defects in the Petition, Patent Owner reserves the right to challenge any and all arguments in the Petition, including other parts of Petitioner's proposed claim constructions, in a subsequent response should the Board institute this *inter partes* review.

Grant (VPG-1004) as supposedly teaching claim 1's requirement of a base that "transfers power to the auxiliary port for powering the auxiliary device." Petition at 27, 39. For this claim limitation, Petitioner asserts that combining Marszalek and Wheeler provides a base that delivers power to a peripheral sensor that is attached to an auxiliary device. *Id.* at 27. Petitioner then asserts that Grant teaches that "power can be transferred from a sensor to an electronic device to which the sensor is attached using an adapter cable." *Id.* As a result, Petitioner concludes it would be "obvious to use an adapter cable to electrically connect the peripheral sensor to the auxiliary device to enable power transfer from the base to the auxiliary device." *Id.* at 28 (emphasis added) (citations omitted). To summarize, for Grounds 1 and 2, Petitioner asserts that a POSA would use Grant's adapter cable to connect between an auxiliary device and the peripheral sensor of Marszalek in order to provide power to the auxiliary device.

However, the factual predicate for Petitioner's combination for Grounds 1 and 2 is false: A POSA would not believe that Marszalek's peripheral sensor is provided with power that can be used to power an auxiliary device. Ex. 2001 (Blackburn Decl.) at ¶ 30, 34, 36, 37. Instead, Marszalek indicates an article 12 may be tethered to the main body of alarm apparatus 2 with a peripheral tether cable 18. VPG-1005 at 11:13-14. This is illustrated in FIG. 1:



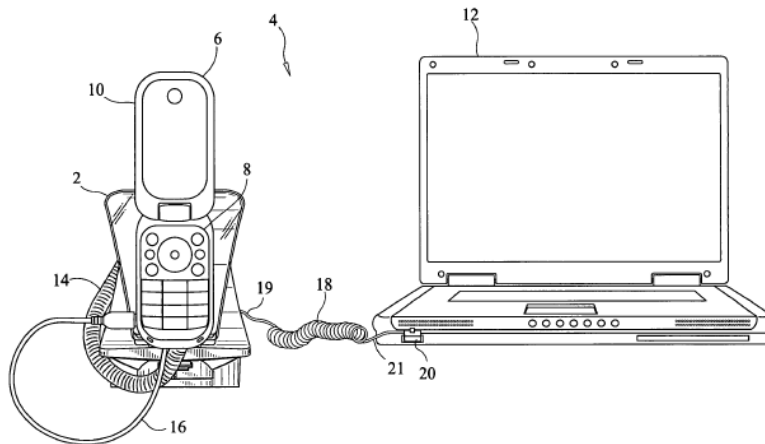


FIG. 1

As shown, in Marszalek, one end 21 of peripheral tether cable 18 “may have a peripheral sensor 20 that is attached to the article 12.” VPG-1005 at 11:18-20. The peripheral sensor 20 may have an LED to indicate its status. *Id.* at 11:22-23. Marszalek states that “peripheral tether cable 18 may communicate power and/or data between the main body 36 and the peripheral sensor 20.” *Id.* at 11:24-26.

But Marszalek lacks any disclosure that would indicate to a POSA that either peripheral tether cable 18 or peripheral sensor 20 are supplying power to article 12. Ex. 2001 (Blackburn Decl.) at ¶ 33. To the contrary, FIG. 1 shows peripheral sensor 20 is simply “attached” to the front of article 12 – i.e. a laptop computer, which typically does not have a power connection along the front. *Id.* Additionally, peripheral sensor 20 is not described or shown as having a port for connecting to article 12 and is not otherwise described as being electrically connected with article 12. *Id.*

In fact, Marszalek also does not teach a POSA that peripheral sensor 20 is

even supplied with power that would be sufficient for use with article 12 or that peripheral tether cable 18 carries power sufficient for use with article 12. *Id.* at ¶ 34. Instead, A POSA would understand that the power requirements for a laptop would be much different than for peripheral sensor 20. *Id.* A POSA would know the voltages and amperages for a peripheral device such as a laptop would substantially exceed that required for peripheral sensor 20 – even if peripheral sensor 20 is equipped with an LED or a plunger switch. *Id.*

For example, a laptop computer when either operating from AC power or local battery requires an input power of typically 20W to 60W, whereas a sensor device with an LED used for security purposes (such as Marszalek's peripheral sensor 20) would only require an input power of typically 0.1 W to power an LED. *Id.* Using for purposes of illustration a 60W requirement, such a peripheral device would require about 600 times more power than what is required for an LED. *Id.* This would then require a commensurate power supply and peripheral tether cable – none of which is taught by Marszalek. *Id.* In short, Marszalek contains no disclosure teaching a POSA that peripheral sensor 20 or cable 18 are equipped to provide power to article 12, which would have a significantly different power requirement than peripheral sensor 20. *Id.*

A POSA would also understand that different auxiliary devices (e.g., a speaker vs. another Bluetooth device) will have significantly different power

requirements. *Id.* at ¶ 35. Yet Marszalek does not disclose providing power to the peripheral sensor for any of these devices – much less a way of adjusting for these different requirements for different auxiliary devices. *Id.*

Therefore, whether Grant teaches power can be transferred from a sensor to an electronic device as Petitioner asserts (Petition at 27-28) is immaterial because a POSA would understand that Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device. Ex. 2001 (Blackburn Decl.) at ¶ 36. Accordingly, a POSA would not make the combination of Grant and Marszalek asserted in the Petition. *Id.* Furthermore, a POSA would not have a reasonable expectation of success in combining Grant with Marszalek's peripheral sensor because, again, Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device. *Id.*

Patent Owner respectfully asserts that the Petition should be denied because Grounds 1 and 2 each rely on this faulty combination of Marszalek and Grant.

**B. The Petition Should Be Denied As Failing to Provide Evidence a POSA Would Combine Brenner and Marszalek or Would Have a Reasonable Expectation of Success in Doing So (Grounds Three and Four)**

For reasons similar to those set forth for Grounds 1 and 2, the Petition should be denied because, in both Grounds 3 and 4, Petitioner fails to present evidence that a POSA would combine the adapter cable of Brenner (VPG-1007)

with the peripheral sensor of Marszalek (VPG-1005) or that a POSA would have a reasonable expectation of success in doing so.

Grounds 3 and 4 of the Petition each rely on a combination that includes Marszalek (VPG-1005), Wheeler (VPG-1006), and Brenner (VPG-1007) as supposedly teaching claim 1's requirement of a base that "transfers power to the auxiliary port for powering the auxiliary device." Petition at 62, 70. For this claim limitation, Petitioner asserts that combining Marszalek and Wheeler provides a base that delivers power to a peripheral sensor that is attached to an auxiliary device. *Id.* at 62. Petitioner then asserts that Brenner teaches that "power can be transferred from a sensor to an electronic device to which the sensor is attached using an adapter cable." *Id.* As a result, Petitioner concludes it would be "obvious to use an adapter cable to electrically connect the peripheral sensor to the auxiliary device to enable power transfer from the base to the auxiliary device." *Id.* at 62-63 (emphasis added) (citations omitted). To summarize, for Grounds 3 and 4, Petitioner asserts that a POSA would use Brenner's adapter cable to connect between an auxiliary device and the peripheral sensor of Marszalek in order to provide power to the auxiliary device.

However, as in Grounds 1 and 2, the factual predicate for Petitioner's combination for Grounds 3 and 4 is false: A POSA would not believe that Marszalek's peripheral sensor is provided with power that can be used to power an

auxiliary device. Ex. 2001 (Blackburn Decl.) at ¶ 40, 44, 46, 47. Instead, Marszalek indicates an article 12 may be tethered to main body of alarm apparatus 2 with a peripheral tether cable 18. VPG-1005 at 11:13-14. This is illustrated in FIG. 1:

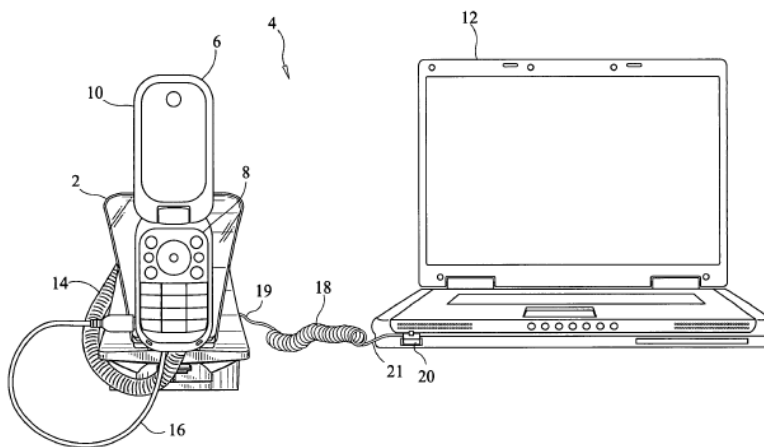


FIG. 1

As shown, in Marszalek, one end 21 of peripheral tether cable 18 “may have a peripheral sensor 20 that is attached to the article 12.” VPG-1005 at 11:18-20. The peripheral sensor 20 may have an LED to indicate its status. *Id.* at 11:22-23. Marszalek states that “peripheral tether cable 18 may communicate power and/or data between the main body 36 and the peripheral sensor 20.” *Id.* at 11:24-26.

But Marszalek lacks any disclosure that would indicate to a POSA that either peripheral tether cable 18 or peripheral sensor 20 are supplying power to article 12. Ex. 2001 (Blackburn Decl.) at ¶ 43. To the contrary, FIG. 1 shows peripheral sensor 20 is simply “attached” to the front of article 12 – i.e. a laptop computer, which typically does not have a power connection along the front. *Id.*

Additionally, peripheral sensor 20 is not described or shown as having a port for connecting to article 12 and is not otherwise described as being electrically connected with article 12. *Id.*

In fact, Marszalek also does not teach a POSA that peripheral sensor 20 is even supplied with power that would be sufficient for use with article 12 or that peripheral tether cable 18 carries power sufficient for use with article 12. *Id.* at ¶ 44. Instead, A POSA would understand that the power requirements for a laptop would be much different than for peripheral sensor 20. *Id.* A POSA would know the voltages and amperages for a peripheral device such as a laptop would substantially exceed that required for peripheral sensor 20 – even if peripheral sensor 20 is equipped with an LED or a plunger switch. *Id.*

For example, a laptop computer when either operating from AC power or local battery requires an input power of typically 20W to 60W, whereas a sensor device with an LED used for security purposes (such as Marszalek's peripheral sensor 20) would only require an input power of typically 0.1 W to power an LED. *Id.* Using for purposes of illustration a 60W requirement, such a peripheral device would require about 600 times more power than what is required for an LED. *Id.* This would then require a commensurate power supply and peripheral tether cable – none of which is taught by Marszalek. *Id.* In short, Marszalek contains no disclosure teaching a POSA that peripheral sensor 20 or cable 18 are

equipped to provide power to article 12, which would have a significantly different power requirement than peripheral sensor 20. *Id.*

A POSA would also understand that different auxiliary devices (e.g., a speaker vs. another Bluetooth device) will have significantly different power requirements. *Id.* at ¶ 45. Yet Marszalek does not disclose providing power to the peripheral sensor for any of these devices – much less a way of adjusting for these different requirements for different auxiliary devices. *Id.*

Therefore, whether Brenner teaches power can be transferred from a sensor to an electronic device as Petitioner asserts (Petition at 62) is immaterial because a POSA would understand that Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device. Ex. 2001 (Blackburn Decl.) at ¶ 46. Accordingly, a POSA would not make the combination of Brenner and Marszalek asserted in the Petition. *Id.* Furthermore, a POSA would not have a reasonable expectation of success in combining Brenner with Marszalek's peripheral sensor because, again, Marszalek's peripheral sensor is not provided with power for transferring to an auxiliary device. *Id.*

Patent Owner respectfully asserts that the Petition should be denied because Grounds 3 and 4 each rely on this faulty combination of Marszalek and Brenner.

**C. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Grant, Marszalek, and Wheeler (Grounds One and Two)**

In a section entitled “Motivation for Combining Grant, Marszalek, and Wheeler . . .” Petitioner asserts there was a market need for “a system and/or method for securing *two or more articles* in a self-contained, all-in-one configuration.” Petition at 17. Because Grant only secures a single article, Petitioner asserts a POSA would be motivated to improve Grant “such that it could be used to secure two or more articles of merchandise – this motivation would have led to Marszalek and Wheeler.” *Id.* This purported motivation for combining Grant, Marszalek, and Wheeler is used for both Grounds One and Two. *Id.* at 17, 44.

Assuming arguendo Petitioner is correct regarding a market need for a system and/or method for securing two or more articles, such does not provide a rationale for combining Grant with both Marszalek and Wheeler. Petitioner relies particularly on the embodiment of Marszalek shown in FIG. 1 with two articles 6 and 12:



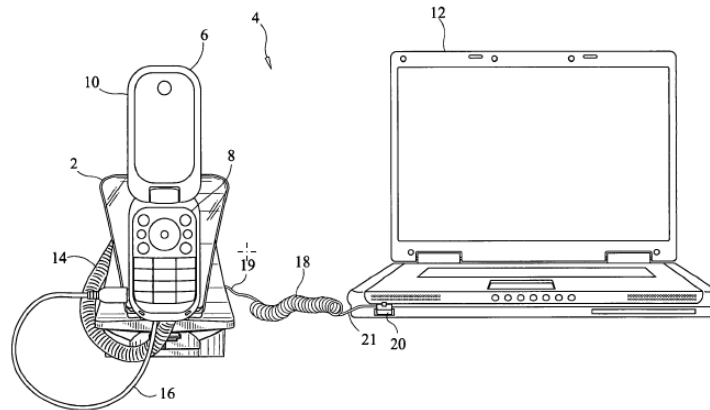


FIG. 1

As admitted by Petitioner, Marszalek discloses a device for securing a second article – i.e. two or more articles. Petition at 17-18 (citing Marszalek), and Petitioner is combining such with Grant in Grounds 1 and 2. As such, there is no reason a POSA would look further to Wheeler because Petitioner’s rationale of “securing *two or more* articles” is satisfied by the combination of just Grant and Marszalek, and Petitioner provides no evidence of a rationale for further combining Wheeler.

In fact, a POSA would not make the addition of Wheeler to the combination of Grant and Marszalek because such would be redundant. Again, as noted by Petitioner, Wheeler also teaches securing multiple articles. *Id.* But, as Petitioner admits the combination of Grant and Marszalek would already secure two articles, a POSA would not be motivated to further combine Wheeler to the Grant and Marszalek combination because such would be unnecessary and redundant. Prior Federal Circuit and Board decisions have previously concluded that where

combining prior art is unnecessary or redundant, there is no reasonable rationale for a POSA to do so. *See, e.g., Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1369 (Fed. Cir. 2012) (reversing district court finding of obviousness, noting: “[b]ecause each device independently operates effectively, a person having ordinary skill in the art, who was merely seeking to create a better device to drain fluids from a wound, would have no reason to combine the features of both devices into a single device.”); *Ex Parte Burns*, 2017 Pat. App. LEXIS 4994, \*4-5 (PTAB May 1, 2017) (rejecting the addition of Filliez in order to provide further reinforcement as “unnecessary (redundant)” where there was “no need for further reinforcing” of Paar); *Ex parte Chandrachood*, 2015 Pat. App. LEXIS 1378, \*6-7 (PTAB Mar. 9, 2015) (“Because the combination of Hanaoka, Masahiro, and Gondo already operates effectively in its radial control configuration, a person . . . who was merely seeking to create a better plasma reactor, would have no reason to add the circumferential control features of . . . Kholodenko to the combination of Hanaoka, Masahiro, and Gondo”).

Petitioner also asserts that “a POSA would have been motivated to adapt the security system attained by combining Grant and Marszalek to simultaneously secure an article of merchandise and its complementary auxiliary device, as taught be Wheeler.” Petition at 19. Once again, however, Petitioner admits the combination of Grant and Marszalek would already secure two articles and thereby

meets the motivating need. Petitioner provides no rationale for further combination of Wheeler to Grant and Marszalek – much less describes what Wheeler teaches a POSA must do in order to “adapt the security system attained by combining Grant and Marszalek.” *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (indicating that obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

Petitioner attempts to justify adding Wheeler to the Grant and Marszalek combination because of Wheeler’s use of the term “complementary” for the second device and Petitioner’s proposed claim construction for “auxiliary device.” Specifically, Petitioner asserts that an “auxiliary device of the item of merchandise” should be construed as “an electronic device complementary to the article of merchandise.” As already explained, Patent Owner disagrees with this construction. Regardless, the rationale of adding Wheeler to Grant and Marszalek simply because Wheeler secures a “complementary device” that Petitioner equates with the “auxiliary device” of claim 1 is a classic example of impermissible hindsight. *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“It is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered

obvious”). Petitioner’s attempt to use the claim or claim construction as a rationale for a POSA’s motivation should be rejected.

**D. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Grant and Vogt (Ground Two)**

For Ground Two, Petitioner admits that Grant teaches numerous and various sensing techniques for determining whether a cable has been cut or disconnected. Petition at 42. However, Petitioner asserts that a POSA would “understand that the security system of Grant is not limited to the sensing examples listed in the specification and could potentially be improved by employing different sensing techniques.” Petition at 42 (emphasis added). Based on this conclusion, the Petition asserts: “[a] POSA would have been motivated to look at other security systems configured to monitor the integrity of cable connection” and that such would lead to Vogt. *Id.* The declaration of Petitioner’s employee presents basically the same statements. *See* VPG-1012 at ¶¶ 47-48. These unsupported and conclusory assertions should be rejected; Petitioner fails to present evidence of a rationale for combining Grant and Vogt. *See, e.g., TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1358-59 (Fed. Cir. 2019) (rejecting conclusory statements noting “a conclusory assertion with no explanation is inadequate to support a motivation to combine . . .”).

More particularly, Petitioner submits no evidence of a problem, market pressure or need that would lead a POSA to modify Grant. For example, Petitioner lists five different techniques supposedly disclosed by Grant for sensing that a cable has been cut or disconnected – yet Petitioner fails to identify a problem or deficiency with any of these solutions or any unresolved need that remains.

Petition at 42. Petitioner asserts that a POSA would understand Grant could be “improved” and yet provides no evidence of anything in Grant that needs improvement or evidence that adding Vogt actually results in an improvement. *Id.* Petitioner’s challenge fails because it has not provided evidence showing a POSA would have an apparent reason to combine known elements in the fashion claimed by the patent at issue. *See, e.g., Personal Web Techs.*, 848 F.3d at 991.

Even if a POSA would understand that Grant could be improved, Petitioner’s conclusory argument still falls short. As noted in *TQ Delta*, 942 F.3d at 1360 , the assertion that a POSA would be motivated to combine in order to “build something better” is not an acceptable rationale. Instead, the Petitioner must “explain why a person of ordinary skill in the art would have combined elements from specific references *in the way the claimed invention does* – knowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references.” *Id.* (citations omitted. Here, Petitioner simply asserts that a POSA would have knowledge that Grant can be

improved, which is a conclusory argument that would justify any combination of prior art if such were acceptable. It was incumbent on Petitioner to instead explain why a POSA would have combined Grant and Vogt in the way set forth in the claim.

Regardless, a POSA would in fact not make Petitioner's proposed combination of Grant and Vogt because such would be redundant. Again, Petitioner admits that Grant teaches numerous and various techniques for monitoring the connection of the cable and the sensor in Grant's security system. Petition at 42. But Petitioner then asserts that a POSA would modify Grant to use the sensing technique of Vogt to accomplish precisely the same thing: "to monitor the connection between the tether cable and the sensor in Grant's security system." *Id.* at 43. However, prior Federal Circuit and Board decisions have previously concluded that where combining prior art is unnecessary or redundant, there is no reasonable rationale for a POSA to do so. *See, e.g., Kinetic Concepts, Inc.* at 1369 (reversing district court finding of obviousness, noting: "[b]ecause each device independently operates effectively, a person having ordinary skill in the art, who was merely seeking to create a better device to drain fluids from a wound, would have no reason to combine the features of both devices into a single device."); *Ex Parte Burns*, 2017 Pat. App. LEXIS 4994, at \*4-5 (rejecting the addition of Filliez in order to provide further reinforcement as "unnecessary (redundant)" where there

was “no need for further reinforcing” of Paar); *Ex parte Chandrachood*, 2015 Pat. App. LEXIS 1378, at \*6-7 (“Because the combination of Hanaoka, Masahiro, and Godo already operates effectively in its radial control configuration, a person . . . who was merely seeking to create a better plasma reactor, would have no reason to add the circumferential control features of . . . Kholodenko to the combination of Hanaoka, Masahiro, and Gondo”). Accordingly, Petitioner respectfully asserts that Ground Two of the Petition fails.

**E. The Petition Should Be Denied for Failing to Provide Evidence Showing a POSA Would Make the Redundant Combination of Brenner, Marszalek, and Wheeler (Grounds Three and Four)**

As previously stated, the Petitioner must provide evidence showing a POSA would have an apparent reason to combine known elements in the fashion claimed by the patent at issue and would have a reasonable expectation of success in doing so. *KSR Int’l Co.*, 550 U.S. at 418 ; *Personal Web Techs.*, 848 F.3d at 991. In a section entitled “Motivation for Combining Brenner, Marszalek, and Wheeler . . .” Petitioner asserts there was a market need for “a system and/or method for securing *two or more articles* in a self-contained, all-in-one configuration.” Petition at 53. Because Brenner only secures a single article, Petitioner asserts a POSA would be motivated to improve Brenner by combination with Marszalek in order to “meet this known market need.” *Id.* Then, to justify the further addition of Wheeler, Petitioner asserts in conclusory fashion: “In addition, a POSA would have been

motivated to adapt the security system to simultaneously secure an article of merchandise and its complementary auxiliary device as taught in Wheeler.” *Id.* at 54.

Assuming *arguendo* Petitioner is correct regarding a market need for a system and/or method for securing two or more articles, such does not provide a rationale for combining Brenner with both Marszalek and Wheeler. Petitioner relies particularly on the embodiment of Marszalek shown in FIG. 1 with two articles 6 and 12:

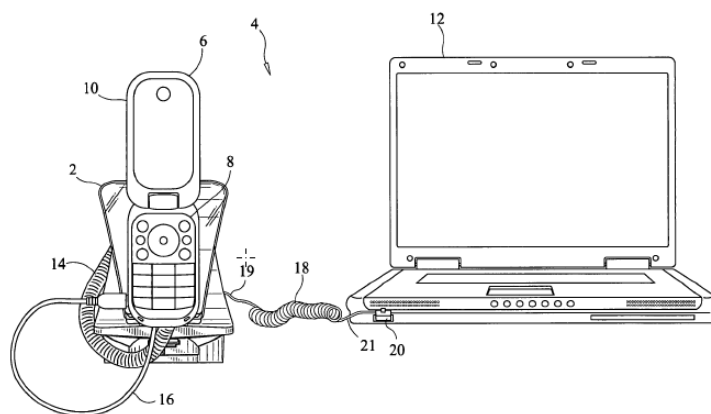


FIG. 1

As admitted by Petitioner, Marszalek discloses a device for securing a second article – i.e. two or more articles. Petition at 17-18, 53 (citing Marszalek), and Petitioner is combining such with Brenner in Grounds 3 and 4. As such, there is no reason a POSA would look further to Wheeler because Petitioner’s rationale of “securing *two or more* articles” is satisfied by the combination of just Brenner



and Marszalek, and Petitioner provides no evidence of a rationale for further combining Wheeler.

In fact, a POSA would not make the addition of Wheeler to the combination of Brenner and Marszalek because such would be redundant. Again, as noted by Petitioner, Wheeler also teaches securing multiple articles. *Id.* But, as Petitioner admits the combination of Brenner and Marszalek would already secure two articles, a POSA would not be motivated to further combine Wheeler to the Brenner and Marszalek combination because such would be unnecessary and redundant. Prior Federal Circuit and Board decisions have previously concluded that where combining prior art is unnecessary or redundant, there is no reasonable rationale for a POSA to do so. *See, e.g., Kinetic Concepts, Inc.* at 1369 (reversing district court finding of obviousness, noting: “[b]ecause each device independently operates effectively, a person having ordinary skill in the art, who was merely seeking to create a better device to drain fluids from a wound, would have no reason to combine the features of both devices into a single device.”); *Ex Parte Burns*, 2017 Pat. App. LEXIS 4994, at \*4-5 (rejecting the addition of Filliez in order to provide further reinforcement as “unnecessary (redundant)” where there was “no need for further reinforcing” of Paar); *Ex parte Chandrachood*, 2015 Pat. App. LEXIS 1378, at \*6-7 (“Because the combination of Hanaoka, Masahiro, and Gondo already operates effectively in its radial control configuration, a person . . .

who was merely seeking to create a better plasma reactor, would have no reason to add the circumferential control features of . . . Kholodenko to the combination of Hanaoka, Masahiro, and Gondo”).

Petitioner also asserts that “a POSA would have been motivated to adapt the security system” attained by combining Brenner and Marszalek “to simultaneously secure an article of merchandise and its complementary auxiliary device, as taught be Wheeler.” Petition at 54. One again, however, Petitioner admits the combination of Brenner and Marszalek would already secure two articles and thereby meets the motivating need. Petitioner provides no rationale for further combination of Wheeler to the security system of Brenner and Marszalek – much less describes what Wheeler teaches a POSA must do in order to “adapt the security system attained by combining Brenner and Marszalek. *See In re Kahn*, 441 F.3d at 988 (indicating that obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

As in Grounds 1 and 2 discussed earlier, for Grounds 3 and 4 Petitioner attempts to justify adding Wheeler to the Brenner and Marszalek combination because of Wheeler’s use of the term “complementary” for the second device. Again, the purpose behind Petitioner’s claim construction for “auxiliary device” becomes clear: Petitioner is asserting that an “auxiliary device of the item of

merchandise” should be construed as “an electronic device complementary to the article of merchandise” in order to create a rationale. However, the rationale of adding Wheeler to Brenner and Marszalek simply because Wheeler secures a “complementary device” that Petitioner equates with the “auxiliary device” of claim 1 is a classic example of impermissible hindsight. *In re Fritch*, 972 F.2d at 1266 (“It is impermissible to use the claimed invention as an instruction manual or “template” to pieced together the teachings of the prior art so that the claimed invention is rendered obvious”). Petitioner’s attempt to use the claim or claim construction as a rationale for a POSA’s motivation should be rejected.

**F. The Petition Should Be Denied for Failing to Provide a Reasonable Rationale for the Combination of Brenner and the ‘730 Publication (Ground Four)**

The arguments advanced in Ground 4 of the Petition are predicated on the contention that “[a] POSA would have recognized that Brenner may suffer from reliability issues because the securing tether can be ‘*a spiral cable*’ or ‘*can be wound under tensile stress*’ in a winding device.” Petition at 73 (emphasis in original). According to the Petition, these reliability concerns arise because when an optical waveguide, which is identified as the securing tether here, “is subjected to bending and winding, it is prone to at least two types of signal loss: ‘curvature loss’ and ‘microbend loss.’” *Id.*; Figh Decl. ¶ 63. On this basis, the Petition

concludes that a POSA would have been motivated to search for a solution that did not rely on the optical waveguide of Brenner. Petition at 74; Figh Decl. ¶ 64.

The Board has already rejected the identical argument made by Petitioner in two prior petitions for *inter partes* review and should do so again here. *See* IPR2019-01206, Paper No. 8 at 14-18; IPR2019-01209, Paper No. 9 at 14-18. In any event, Petitioner identifies no support for the conclusion that the optical waveguide of Brenner would be unreliable, let alone that it would be prone to signal loss. The conclusion is pure speculation, as Brenner does not provide detail regarding the materials and dimensions of the disclosed system from which such a conclusion could be drawn. In short, Petitioner’s argument is that an optical waveguide is inherently unreliable in any application that involves the bending of the waveguide. Not only does Brenner itself teach away from this conclusion, but the state of the prior art as of the patent’s effective date—which Petitioner did not even address—refutes the contention, providing numerous examples of waveguides used in such applications. Petitioner’s contention amounts to nothing more than hindsight analysis, substituting the patent as a guide for what should be an assessment of the rationale for the actions that POSA would have exercised as of the effective filing date of the patent. *Kinetic Concepts, Inc.* at 1368 (cautioning care “not to allow hindsight reconstruction of references to reach the claimed

invention without any explanation as to how or why the references would be combined.").

**i. The Board has already rejected this identical argument and issue preclusion should ultimately be applied to prevent its rehearing.**

The Board has already rejected this argument, which was made by Petitioner in two prior petitions for *inter partes* review. See IPR2019-01206, Paper No. 8 at 14-18; IPR2019-01209, Paper No. 9 at 14-18. The issue preclusion doctrine posits that “[w]hen an issue of fact or law is actually litigated and determined by a valid and final judgment, and the determination is essential to the judgment, the determination is conclusive in a subsequent action between the parties, whether on the same or a different claim.” *B & B Hardware, Inc. v. Hargis Industries, Inc.*, 135 S. Ct. 1293, 1303 (2015) (quoting Restatement (Second) of Judgments § 27, p. 250 (1980); *id.* § 28, at 273). Furthermore, the Federal Circuit recently confirmed that issue preclusion is applicable to decisions rendered in *inter partes* reviews, and thus is appropriate here. *Papst Licensing GmbH & Co. KG v. Samsung Electronics America, Inc.*, 924 F.3d 1243, 1250-51 (Fed. Cir. 2019).

The argument advanced here by Petitioner was actually litigated and essential to the judgment. Specifically, in both of its prior petitions, Petitioner argued that a POSA would be motivated to replace the optical waveguide of Brenner because the waveguide is subject to signal loss from bending and thus

unreliable—the same argument advanced here. IPR2019-01206, Paper No. 8 at 14-15; IPR2019-01209, Paper No. 9 at 14-15. The Board considered that argument and rejected it on the basis that Brenner itself indicates that the optical waveguide is reliable and because Petitioner failed to provide support for its assertions. IPR2019-01206, Paper No. 8 at 16-17, 18; IPR2019-01209, Paper No. 9 at 16-17, 18. The Board’s decision rested solely on these conclusions and thus the decisions were essential to the judgment.<sup>2</sup> *See generally id.*

Brenner, of course, continues to refute Petitioner’s argument that a POSA would have been motivated to reject Brenner’s optical waveguide on reliability grounds, as detailed in the analysis below. Moreover, Petitioner has failed to cure

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<sup>2</sup> While the current Petition and the prior petitions discussed here involved the same primary reference—Brenner—it is recognized that the prior petitions applied secondary art different than that which is at issue here. Although the Board’s decisions on those petitions mentioned the secondary references at issue there (i.e., Vogt and Chapman), they did so only in cataloging the arguments advanced by the Petitioner. The Board’s conclusions and its underlying reasoning were based solely on the evidence of Brenner and dictionary definitions provided by Petitioner—the same dictionary definitions provided in the current Petition. IPR2019-01206, Paper No. 8 at 16-18; IPR2019-01209, Paper No. 9 at 16-18.

its deficiencies in factual support for this contention. Indeed, as in the prior petitions, the current Petition relies solely on two dictionary definitions and the testimony of Petitioner's employee, which itself relies on these same dictionary definitions. *Compare* Petition at 73-74 *and* Ex. VPG-1012 ¶ 63 *with* IPR2019-01206, Paper No. 8 at 17; IPR2019-01209 *and* Paper No. 9 at 17. Because the current Petition advances the same argument based on the same evidence that was offered in its prior petitions, which were denied institution, the issue has been actually litigated.

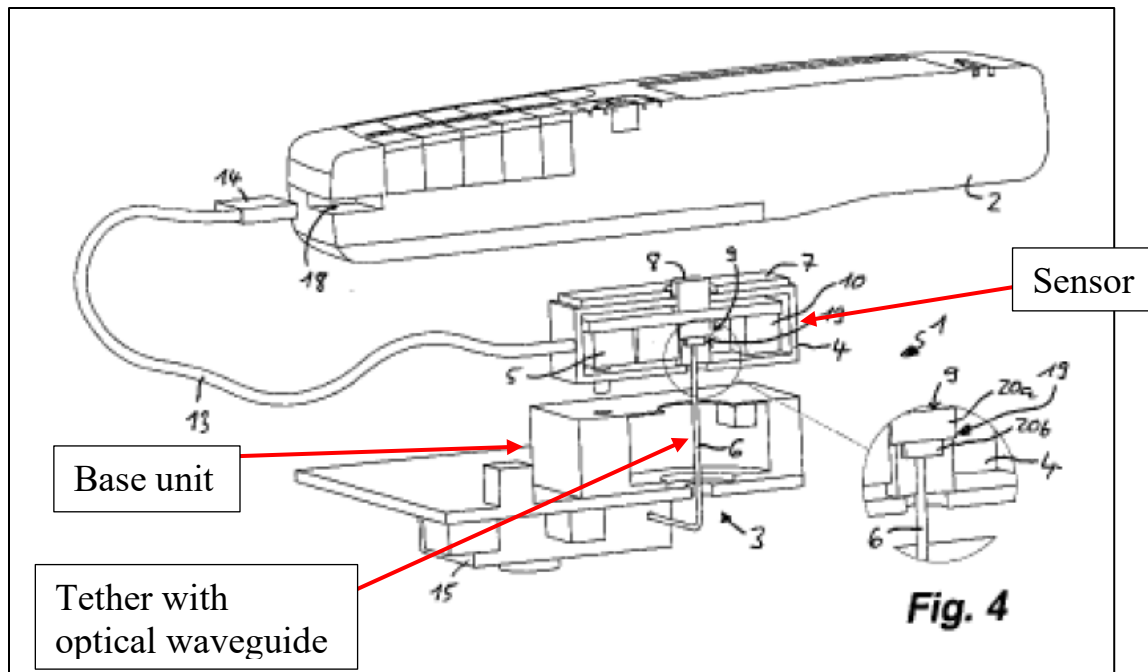
Thus, issue preclusion applies if the prior denials of institution are final judgments. Both of the prior institution denials issued on January 8, 2020. The Supreme Court has confirmed that such denials of institution are not reviewable by the appellate court. *Cuozzo Speed Techs., LLC*, 136 S. Ct. at 2140. However, Patent Owner recognizes that Petitioner has filed a motion for rehearing. Thus, as of the time of filing of this Preliminary Response, the prior decisions denying institution are not yet final. Nevertheless, statistics on reconsideration of institution denials reveal that such motions are rarely granted. And, given the weakness of Petitioner's argument, Patent Owner expects that the decision will be final prior to the deadline for the Board to issue its institution decision here. If so, then all the elements required to apply the doctrine of issue preclusion are present

and Patent Owner respectfully requests that the Board apply the doctrine to deny Ground 4 of the present Petition.

**ii. Brenner teaches the feasibility of using an optical waveguide for communication in a retail security devices.**

Even disregarding the application of issue preclusion, Ground 4 fails to establish obviousness because it does not provide any reasonable rationale for the proposed combination. In order to understand the numerous flaws in Petitioner's rationale, it is useful to understand the security system disclosed in Brenner (Ex. VPG-1007). Brenner is directed to a security apparatus for protecting items in retail merchandise, including "demonstration devices that the customer should hold." Brenner at 1. As shown in the annotated figure below, the security system of Brenner includes a sensor unit, a base unit, and a securing tether connecting the sensor and base units. *Id.* The securing tether includes an optical waveguide (i.e., a fiber optic cable) within the tether that is used to communicate optical signals between the sensor and base units. *Id.* at 2.





Brenner teaches various embodiments of the securing tether that might be useful in enabling handlers of the protected items to lift the item from its resting position and thus inspect the item. In one instance, Brenner suggests that the securing tether may constitute a spiral cable. *Id.* at 5. In another embodiment, Brenner teaches that the securing tether may be wound in a winding device under tensile stress. *Id.* Despite these types of tethers, and the bending inherent therein, Brenner teaches that “[i]n comparison with previously known securing devices, the apparatus according to the invention also has the advantage of reduced susceptibility to faults, because the optoelectronic signal transfer device operates practically without wear.” *Id.* at 3.

**iii. Petitioner fails to provide a reasonable rationale for replacing Brenner’s optical waveguide.**

Despite the teaching of Brenner, Petitioner asserts that a person of ordinary skill would replace the optical waveguide of Brenner because it “may suffer from reliability issues because the securing tether can be ‘*a spiral cable*’ or ‘*can be wound under tensile stress*.’” Figh Decl. ¶ 63<sup>3</sup>; *see also* Petition at 73. The Petition then offers the conclusory assertion that, “[i]t is a well-known fact that when an optical waveguide is subjected to bending or winding, it is prone to at least two types of signal loss: ‘curvature loss’ and ‘microbend loss.’” Petition at 73; Figh Decl. ¶ 63. On this basis, Petitioner concludes that a POSA would have recognized that the system “is prone to reliability issues due to signal loss in the optical waveguide, and would have been motivated to look for a solution that would enable the optical transceiver of the sensor to communicate with the base without relying on an optical waveguide in the securing tether.” Petition at 74; Figh Decl. ¶ 64.

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<sup>3</sup> Mr. Figh’s curriculum vitae does not reflect any experience with the design and application of fiber optic cabling, optical communication components, and data transmission that are central to the claims and requisite of a person of ordinary skill in the art.

This rationale suffers from numerous deficiencies. First and foremost, Brenner itself teaches away from the rationale advanced by Petitioner. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant.” *Ormco Corp. v. Align Technology, Inc.*, 463 F. 3d 1299, 1308 (Fed. Cir. 2006). As explained above, Brenner teaches optical transceivers in a sensor and a base connected by a tether, including an optical waveguide, for communicating between the two. Brenner at 1-2. Although Brenner expressly contemplates customer handling of merchandise attached to the sensor and tether (*id.* at 1), it nevertheless teaches that “the apparatus according to the invention also has the advantage of reduced susceptibility to faults, because the optoelectronic signal transfer device operates **practically without wear.**” *Id.* at 3, 5 (emphasis added).

This expressly teaches away from the path taken by the patent, which contemplates placing an optical transceiver in the cable, rather than the base, as required by the challenged claims. Ex. VPG-1001, claim 19<sup>4</sup>. Moreover, a POSA would have to ignore this teaching to proceed in the manner suggested by

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<sup>4</sup> Challenged claims 20, 23, and 28 of the ‘358 patent all depend from claim 19 and therefore also require this feature.

Petitioner, which posits the direct opposite—that the tether of Brenner is subjected to so much wear that signal loss results. Petition at 73; Figh Decl. at ¶ 63. Indeed, it is remarkable that Petitioner would rely on Brenner at all, given that it views the reference as inherently unreliable.<sup>5</sup>

In addition to directly contradicting Brenner’s teachings, Petitioner’s expressed rationale for replacing Brenner’s optical waveguide is also erroneous because it provides no justification or support for the conclusion that the waveguide is “prone to . . . signal loss,” the basis for its claim that the system is unreliable. Petition at 73; Figh Decl. ¶ 63. Though Petitioner purports to support this argument by sole reliance on the dictionary definitions of “curvature loss” and “microbending loss,” it fails to inform the Board that such losses do not equate to signal loss, as Petitioner suggests. Petition at 63-64; Figh Decl. ¶ 63. Nor does Petitioner proffer any explanation regarding what effect, if any, signal loss, curvature loss, or microbend loss would have in an optical waveguide when utilized in the security device disclosed in Brenner. Rather, Petitioner merely

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<sup>5</sup> Not only does Brenner encourage the skilled artisan to employ the optical waveguide that Petitioner proposes discarding, but Petitioner’s proposed alternative use of electrical conductors is also discouraged by the prior art that the skilled artisan would have considered. *See infra* at 44-45.

implies that any curvature loss or microbending loss would necessarily lead to signal loss, motivating a POSA to discard the optical waveguide of Brenner.

Under Petitioner's rationale, fiber optic cables could never be reliably employed in any application where bending was required.

The assumption that "curvature loss" and "microbend loss" necessarily result in "signal loss" is false. *See* Ex. 2002 ¶ 41 (previously filed Declaration of Eric R. Pearson, IPR2019-01206, Ex. 2001; refiled here as Ex. 2002). To explain the reasons why this is so, it is first necessary to understand what each of these terms means. "Curvature loss" refers to power loss associated with macrobending of optical fiber. *Id.* at ¶ 46. Macrobending results in significant power losses only when the radius of a macrobend in optical fiber is less than a minimum critical "bend radius," which differs based on the materials and dimensions of the fiber. *Id.*<sup>6</sup>; Ex. VPG-1014 at 545. Similarly, "microbend loss" is attributed to "optical power loss caused by a microbend, i.e., a small bend, kink or abrupt discontinuity" in the optical fiber. Ex. 2002 (Pearson Decl. at ¶ 47); Exhibit VPG-1014 at 575-76. In certain circumstances, these microbend conditions can result in a decrease in the

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<sup>6</sup> Note that the Pearson declaration refers to the same dictionary reference at issue here (Ex. VPG-1014), but refers to it as Ex. VPG-1002, as that was the exhibit number of the dictionary in IPR2019-01206.

power level in an optical fiber. Ex. 2002 (Pearson Decl.) at ¶ 47. As with curvature loss, microbend loss is also dependent, in part, on the materials and dimensions of the fiber employed. *Id.* at ¶ 48.

Thus, both curvature loss and microbend loss address the issue of “power loss.” *Id.* In optical fiber, “power loss” refers to a characteristic of the light transmitted, and particularly to the intensity of light traveling in an optical fiber. *Id.* at ¶¶ 42-43. “Signal loss,” in contrast, refers to the threshold of light intensity at which an optical receiver can detect light. *Id.* at ¶ 44. Only when the power level of the transmitted light at the optical receiver drops below an operational threshold does signal loss occur. *Id.*

Accordingly, a POSA would understand that optical fiber could experience power losses (i.e., curvature loss and microbend loss), but such a loss does not necessarily result in a signal loss. *Id.* at ¶45. Indeed, the same dictionary that Petitioner relies on for its definitions of curvature loss and microbend loss make this point: “Note: A macrobend will not cause a significant radiation loss if it is of sufficiently large radius, the loss depending on the radius and the type of optical fiber.” Ex. VPG-1014 at 545. Moreover, a POSA would also have been aware that microbend losses are insignificant over the short distances involved in a retail security application such as found in Brenner: “[m]icrobend losses are usually negligible for short lengths of fiber.” U.S. Publication No. US2006/0045449 at ¶

20 (Ex. 2003); Ex. 2002 ¶¶ 10, 57 (distinguishing short range applications as “a matter of feet” and long range applications as a matter of kilometers).

Furthermore, a POSA would also understand that different receivers have different signal loss thresholds such that a given power loss in the transmission of light through an optical fiber may result in signal loss in one optical receiver but that same power loss may not result in signal loss in an optical receiver with a lower threshold. Ex. 2002 (Pearson Decl.) at ¶ 45. Thus, to determine the likelihood of signal loss in the Brenner system, it would be necessary to know at least the power delivered by the optical transmitter in the sensor unit, the materials and composition of the optical fiber (from which an appropriate bend radius could be determined), whether the optical fiber employed a sheath to support the fiber and, if so, the material and composition of that sheath, the amount of power lost due to curvature loss and microbend loss, and the threshold of the receiver used to measure the light intensity. *Id.* at ¶ 48. Petitioner does not perform this analysis, rendering its conclusion that Brenner is unreliable due to signal loss purely speculative.

In short, Petitioner fails to provide a reasonable rationale for discarding the optical waveguide in Brenner, negating all of its grounds for obviousness. Because the Petitioner failed to carry its burden of showing that there is a “reasonable likelihood” that any of the challenged claims of Ground 4 of the ‘358 patent are

unpatentable under 35 U.S.C. § 314(a), the Board should decline to institute this *inter partes* review.

**iv. The state of the art demonstrates that waveguides are reliable in applications involving bending.**

Not only does Petitioner fail to carry its burden of showing that a POSA would have had a reasonable rationale to modify Brenner as Petitioner suggests, but the state of the art, as it existed as of the effective filing date of the patent (i.e., February 2016), effectively refutes Petitioner’s proposed rationale. As previously noted, Petitioner seeks to establish that a POSA would replace the optical waveguide of Brenner because bending of the waveguide would result in signal loss, rendering the system unreliable. Petition at 73; Figh Decl. ¶ 63. In addition to the reasons provided in the prior section, this analysis is also proved false because reliable systems employing optical fiber in applications that involve bending of that fiber existed in the art as of the effective date.

Aside from Brenner—which itself was part of the state of the art contradicting Petitioner’s contention—as early as 2005, art existed that disclosed optical fiber suitable for use in “coiled cords in which no damage is caused to the optical fiber cord when the optical fiber cord is tensioned.” U.S. Patent 7,349,610 to Ohsono at 2:37-40 (Ex. 2004) (emphasis added); Ex. 2002 ¶¶ 52-53. In the prior section of this Preliminary Response, it was explained that curvature loss is significant only when a fiber is bent beyond its minimum “bend radius.” Ex. 2002



¶ 46 (citing Martin H. Weik, Fiber Optics Standard Dictionary at 158) (Ex. 2005).

Addressing this very principle, Ohsono taught optical fiber which could be wound to a diameter of between 12mm to 16mm (approximately 1/2 inch), resulting in insignificant loss. Ex. 2004 at 4:36-49. As of 2016, retail security devices utilizing winding devices (i.e., recoilers) in the marketplace had diameters well in excess of the 12mm to 16mm diameter disclosed in Ohsono. For example, Patent Owner's own product, the S1500, was commercially available at least as early as December 2014—before the effective filing date of the '358 patent—and included a recoiler similar to that taught by Brenner. *See* Ex. 2006 at 7. The recoiler included a spool, around which a cable is wound, having a minimum radius of 26 mm (i.e., 52 mm diameter). *Id.* at 3. Thus, winding Ohsono's fiber optic cable using the S1500 recoiler—presumed to be known to a POSA—would not have resulted in significant power losses. As such, as of the effective filing date, a POSA would have understood that optical fiber could readily be used exactly as Brenner indicates and without concerns for “curvature loss” and “microbend loss” in the optical waveguide.

Furthermore, a POSA would not have been limited to employing glass fiber, as disclosed in Ohsono. Ex. 2002 ¶ 54. Other fiber materials were available well before May 2015 that a POSA could have considered utilizing in the Brenner system. For example, plastic optical fiber was commercially available and is

substantially less sensitive to power losses than glass fibers. *Id.* ¶¶ 54-55.

Additionally, ‘bend insensitive’ fibers were commercially available at least as early as 2007 and designed specifically to minimize the power loss issues raised by Petitioner. *Id.* ¶ 56. These bend insensitive optical fibers could be bent to small radii (e.g., 10 mm) without significant loss. *Id.*; *see also* U.S. Patent No. 7,272,289 to Bickham at 1:50-62 (Ex. 2007) (disclosing in 2007 an operable optical waveguide fiber having a bend radius of 10 mm (i.e., a bend diameter of 20 mm)); U.S. Patent No. 7,680,381 to Bookbinder (Ex. 2008) (disclosing same in 2010).

A POSA would have known of the availability of these alternative fiber optic cables and could have employed them in the Brenner system if concerns regarding power loss were at issue. Ex. 2002 ¶ 56. Certainly, selecting an appropriate fiber for the waveguide taught by Brenner would have presented a far simpler solution than unnecessarily designing an entirely new system that lacked such a waveguide, as Petitioner proposes. *Id.* at ¶ 59.

Finally, while Petitioner contends that a POSA would have been concerned with power loss in the optical waveguide of Brenner, it fails to acknowledge other disadvantages associated with cables employing electrical conductors. Indeed, prior to May 2015, prior art taught that the use of standard electrical conductors presented its own set of problems, including fatigue failure from the same cable-bending concerns that were raised in Mr. Figh’s declaration. *Id.* ¶ 60. Specifically,

U.S. Patent No. 8,698,618 to Henson, which issued in April 2014, taught the “need to completely eliminate multi-conductor retractors in the retail display industry.”

Ex. 2009 at 2:47-3:3; 3:11-12. Therefore, Henson would have discouraged a POSA from using security cables including standard electrical conductors as suggested by Petitioner.

Because the state of the art would have taught a POSA that power losses in optical fibers were easily avoidable by selection of appropriate optical fibers and because the art discouraged the use of electric conductors in retail display applications, Petitioner’s contention that a POSA would have replaced the waveguide of Brenner with electrical conductors is without merit. Further, the state of the art refutes Petitioner’s assertion that a POSA would have been concerned with signal loss and reliability in the Brenner system. As such, Petitioner’s Ground 4 for obviousness fails. For this additional reason, the Board should deny institution of this *inter partes* review.

## **V. CONCLUSION**

Petitioner has failed to support its proposed grounds for obviousness. On this basis, the Board should deny institution of this *inter partes* review.

Case No. IPR2020-00069  
Patent No. 10,043,358

Dated: January 24, 2020

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**CERTIFICATE OF COMPLIANCE**

This Petition complies with the type-volume limitation as mandated in 37 C.F.R. § 42.24, totaling 10,981 words. Counsel has relied upon the word count feature provided by Microsoft and manual counting of the words in the images contained herein.

Dated: January 24, 2020

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §42.6(e)(4)(i) *et seq.* and §42.105, the undersigned certifies that on January 24, 2020, a complete and entire copy of this Patent Owner Preliminary Response Under 37 C.F.R. § 42.107, including all exhibits (No. 2001-2009), was provided via email to Patent Owner, as consented to, by serving this upon counsel of record for the Petitioner as follows:

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