

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

Petitioner

v.

INVUE SECURITY PRODUCTS INC.,

Patent Owner

Case IPR2020-00069

U.S. Patent No. 10,043,358

**PETITION FOR *INTER PARTES* REVIEW OF US PATENT NO. 10,043,358
CHALLENGING CLAIMS 1-3, 16-20, 23, 28, and 29 UNDER 35 U.S.C. §
321, 37 C.F.R. § 42.104**

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TABLE OF AUTHORITIES

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LIST OF EXHIBITS

VPG-1001	U.S. Patent No. 10,043,358 (“the ‘358 Patent”)
VPG-1002	U.S. Provisional App. No. 62/240,171
VPG-1003	Prosecution History of the ‘358 Patent
VPG-1004	U.S. Patent Pub. No. 2015/0235533 (“Grant”)
VPG-1005	U.S. Patent No. 8,395,907 (“Marszalek”)
VPG-1006	U.S. Patent Pub. No. 2013/0168527 (“Wheeler”)
VPG-1007	WO 2011/045058 (“Brenner”)
VPG-1008	U.S. Patent No. 5,912,619 (“Vogt”)
VPG-1009	U.S. Patent Pub. No. 2011/0254661 (“Fawcett”)
VPG-1010	U.S. Patent Pub. No. 2014/0335730 (“the ‘730 Publication”)
VPG-1011	The American Heritage Dictionary
VPG-1012	Declaration of John “Jack” Figh, Jr.
VPG-1013	Curriculum Vitae of John “Jack” Figh, Jr.
VPG-1014	Communications Standard Dictionary

I. INTRODUCTION

Vanguard Products Group, Inc., d/b/a Vanguard Protex Global (“Petitioner”) hereby requests *inter partes* review (“IPR”) of claims 1-3, 16-20, 23, 28, and 29 of U.S. Patent No. 10,043,358 (“the ‘358 Patent”) assigned to InVue Security Products Inc. (“Patent Owner”). This Petition presents grounds of invalidity for each of the challenged claims of the ‘358 Patent. Each ground establishes a reasonable likelihood that the challenged claims are unpatentable. Therefore, the Board should grant this Petition and cancel all challenged claims.

II. MANDATORY NOTICES

A. Real Party-in-Interest

The real party-in-interest is Vanguard Products Group, Inc., d/b/a Vanguard Protex Global, a Florida corporation having a principle address at 720 Brooker Creek Blvd, Suite 223, Oldsmar, FL 34677.

B. Related Matters

Patent Owner sued Petitioner in the Middle District of Florida (Case No. 8:18-cv-02548-VMC-SPF), alleging infringement of multiple patents, including the ‘358 Patent. *InVue Security Products Inc., v. Vanguard Products Group, Inc., d/b/a Vanguard Protex Global*, Case No. 8:18-cv-02548-VMC-SPF (M.D. Fla. 2018). The district court litigation involves seven patents in addition to the ‘358 Patent. These patents are as follows: U.S. Patent No. 9,747,765; U.S. Patent No. 9,805,564; U.S.

Patent No. 9,818,274; U.S. Patent No. 9,972,178; U.S. Patent No. 10,008,082; U.S. Patent No. 10,062,253; and U.S. Patent No. 10,098,481. All patents listed above pertain to merchandise security systems.

Petitioner has filed the following IPR petitions against the patents listed above:

- (1) IPR2019-01206 challenging U.S Patent No. 9,818,274;
- (2) IPR2019-01209 challenging U.S. Patent No. 10,062,253;
- (3) IPR2020-00014 challenging U.S. Patent No. 10,008,082;
- (4) IPR2020-00018 challenging U.S. Patent No. 10,098,481;
- (5) IPR2020-00032 challenging U.S Patent No. 9,972,178;
- (6) IPR2020-00048 challenging U.S. Patent No. 9,747,765 (the ‘765 Patent);
- (7) IPR-2020-00066 challenging U.S. Patent No. 9,805,564 (the ‘564 Patent).

The ‘358 and the ‘564 Patents are continuations of and claim priority to the ‘765 Patent. All three patents in this family have similar limitations, and, therefore, this IPR is closely related to IPR2020-00048 and IPR2020-00066.

C. Designation of Counsel and Service Information

Petitioner designates Andriy Lytvyn (Reg. No. 65,166) as lead counsel and both Anton Hopen (Reg. No. 41,849) and Nicholas Pfeifer (Reg. No. 70,568) as backup counsel. Please address all correspondence to lead and backup counsel at

Smith & Hopen, 180 Pine Avenue North, Oldsmar, Florida 34677. Petitioner consents to service by electronic email to andriy.lytvyn@smithhopen.com, anton.hopen@smithhopen.com, np@smtihhopen.com, and ipr@smithhopen.com.

III. GROUNDS FOR STANDING

Petitioner certifies that, under 37 C.F.R. §§ 42.102(a)(2), 42.104(a), the ‘358 Patent is available for IPR, this Petition is timely filed, and Petitioner is not barred or estopped from requesting IPR on the grounds presented.

IV. OVERVIEW OF THE ‘358 Patent

The ‘358 Patent issued on August 7, 2018 and claims priority to two U.S. provisional applications: 62/240,171 (“the First Provisional”) filed on October 12, 2015 and 62/297,215 (“the Second Provisional”) filed on February 19, 2016. The First Provisional does not have any disclosure pertaining to an auxiliary port—which is a limitation present in every claim of the ‘358 Patent. *See* VPG-1002. Therefore, the ‘358 Patent is not entitled to the priority date of the First Provisional. Thus, the effective filing date of the ‘358 Patent is the filing date of the Second Provisional, which is February 19, 2016.

The ‘358 Patent discloses and claims a merchandise security system for “displaying and protecting an article of merchandise from theft.” VPG-1001 at Abstract. The merchandise security system comprises the following components: (1) a sensor configured to be secured to an article of merchandise; (2) a base configured

to removably support the sensor; (3) a cable connecting the sensor to the base; (4) a lock mechanism configured to lock the sensor to the base; and (5) an auxiliary port disposed within the base for connecting an auxiliary device. *Id.* at 2:14-22.

Figure 1, which is reproduced and annotated below, provides an overview of the security system of the '358 Patent.

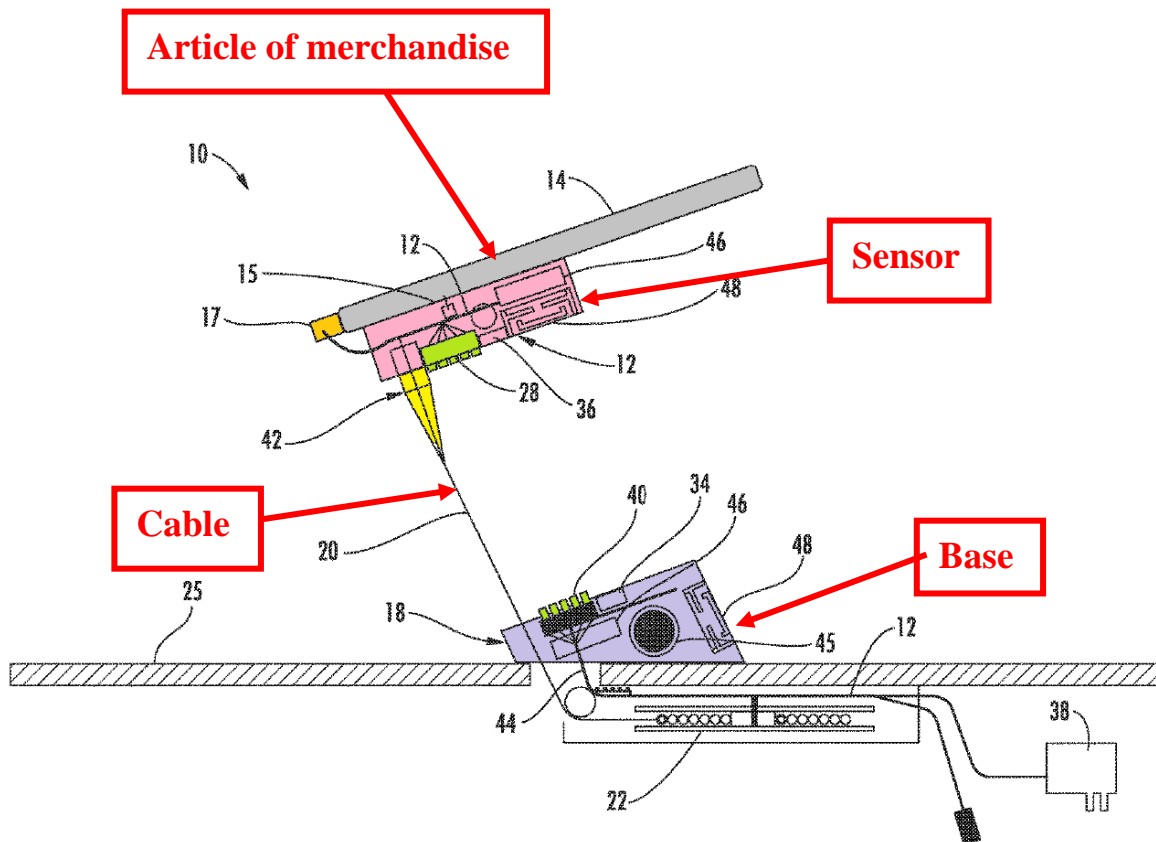
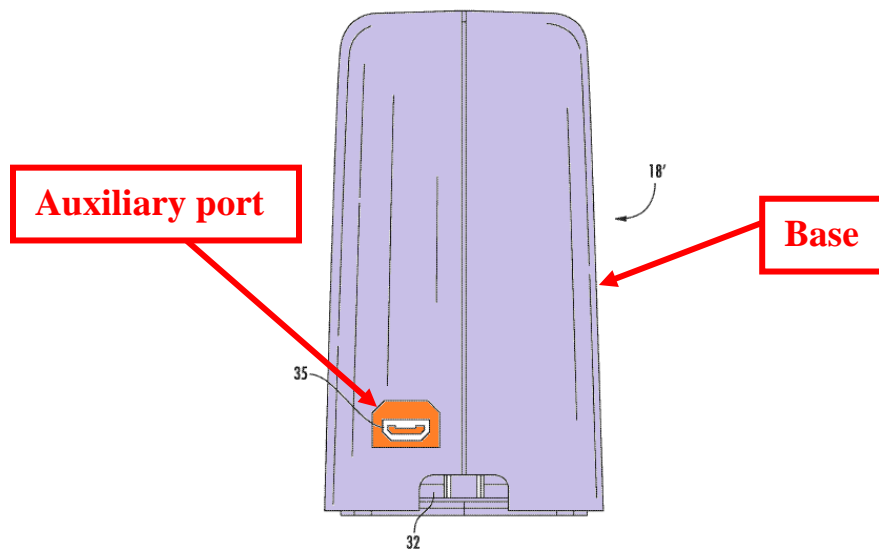


FIG. 1

VPG-1001, Figure 1 (annotated)

The auxiliary port is depicted in Figure 9, which is reproduced and annotated below.



VPG-1001, Figure 9 (annotated)

The invalidity grounds presented in this Petition establish that the security system claimed in the ‘358 Patent is nothing more than an obvious combination of well-known components performing their intended functions in a predictable and expected manner.

V. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSA”) at the time of the invention would have had 4-5 years of experience working with merchandise security systems and have at least a bachelor’s degree in electrical engineering. VPG-1012, ¶ 13.

VI. STATEMENT OF RELIEF REQUESTED

Petitioner requests cancellation of claims 1-3, 16-20, 23, 28, and 29 of the ‘358 Patent. Petitioner’s full statement of the reasons for the relief requested is set forth below.

VII. GROUNDS FOR INVALIDITY

Petitioner requests invalidation of claims 1-3, 16-20, 23, 28, and 29 of the ‘358 Patent based on the following grounds:

GROUND 1: Claims 1-3, 16-18, and 29 are obvious over the combination of Grant, Marszalek, and Wheeler.

GROUND 2: Claims 19, 20, 23, and 28 are obvious over the combination of Grant, Marszalek, Wheeler, and Vogt.

GROUND 3: Claims 1-3, 16, and 18 are obvious over the combination of Brenner, Marszalek, Wheeler, and Fawcett.

GROUND 4: Claims 19, 20, 23, and 28 are obvious over the combination of Brenner, Marszalek, Wheeler, Fawcett, the ‘730 Publication, and Vogt.

VIII. CLAIM CONSTRUCTION

In this Petition, claims of the ‘358 Patent are construed “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). Petitioner proposes the following construction for the terms “auxiliary device of the article of merchandise,” “auxiliary port,” “operably connected,” and “optical transceiver.”

1. “auxiliary device of the article of merchandise”

Although the ‘358 Patent does not define the term “auxiliary device,” the ‘358 Patent provides the following examples of auxiliary devices: “a stylus, speaker, keyboard, Bluetooth device, etc.” VPG-1001 at 5:44-46. The ‘358 Patent further discloses that the auxiliary devices listed above can be “configured to operate with the article of merchandise,” thereby establishing that an auxiliary device is a device that is *complementary* to the article of merchandise. *Id.* at 10:34-38; VPG-1012 at ¶ 20. The ordinary meaning of the term “auxiliary” is “giving assistance or support,” which further confirms that an auxiliary device is a device that is *complementary* to the article of merchandise. VPG-1011 at 57. Therefore, the term “auxiliary device of the article of merchandise” should be construed as “*an electronic device complementary to the article of merchandise.*” VPG-1012 at ¶ 20.

2. “auxiliary port”

Although the ‘358 Patent does not define the term “auxiliary port,” the ‘358 Patent states that the auxiliary port is used “for connecting to corresponding auxiliary devices for the item of merchandise.” VPG-1001 at 5:37-39. The ‘358 Patent further discloses that the auxiliary port enables the base to “electrically connect to an auxiliary device.” *Id.* at 42-45. Thus, the term “auxiliary port” should be construed as “*an electrical port for connecting an auxiliary device.*” VPG-1012 at ¶ 21.

3. “operably connected”

Although the ‘358 Patent uses the expression “operably connected” throughout the specification and the claims to refer to engagement of various components, the ‘358 Patent does not explicitly define this expression. The ‘358 Patent provides the following examples of operable connections: “a recoiler *operably* coupled to the sensor,” “a cable configured to be *operably* connected to the sensor and the base,” “auxiliary port ... configured to *operably* connect to an auxiliary device,” “[a] cable may be *operably* engaged with the sensor,” “a cable ... *operably* engaged with a recoiler,” and “an input connector *operably* connected to the auxiliary device,” *Id.* at Abstract, 2:17-21, 3:8-9, 3:25-27, 9:37-38 (emphasis added).

The common thread in all of the “operable connection” examples listed above is that they enable the security system to perform its intended function: to monitor each listed connection to detect a security event associated therewith, such as “cutting of the cable, removal of the cable from the sensor or the base, and removal of the input connector from the auxiliary port.” *Id.* at 9:40-43; VPG-1012 at ¶ 23. The ordinary meaning of the term “operable” is “capable of or suitable for use,” which further confirms that “operable connection” is a connection that enables the security system to operate according to its intended function by monitoring the

connection and detecting a security event associated therewith. VPG-1011 at 588; VPG-1012 at ¶ 23.

For the reasons set forth above, the term “operably connected” should be construed as “*connected in a manner that enables the security system to detect security events associated with the connection.*” *Id.* at ¶ 24.

4. “optical transceiver”

Although the ‘358 Patent does not define the term “optical transceiver,” the ‘358 Patent states that optical transceivers “may be used to transmit optical signals in predetermined sequences or patterns and/or receive optical signals and convert the optical signals into electrical signals.” VPG-1001 at 6:28-31.

The Communications Standard Dictionary defines the term “optical transceiver”¹ as an “optic receiver-transmitter” consisting of the following components:

- (1) “a photodetector that receives optical signals and converts them to electrical signals,” (which is an “*optical receiver*,” *see* VPG-1014 at 674);
- (2) “a light source, such as a laser, that converts electrical signals to optical signals,” (which is an “*optical transmitter*,” *see id.* at 676-77); and

¹ The Communications Standard Dictionary defines the term “optical transceiver” as a synonym of the term “fiber optic transceiver.” VPG-1014 at 676. Therefore, the cited definition is for the term “fiber optic transceiver.”

(3) “is housed in a single unit with appropriate electrical and optical connectors.” *Id.* at 347.

Based on the specification of the ‘358 Patent and the dictionary definition, the term “optical transceiver” should be construed as “*an optical receiver and an optical transmitter housed in a single unit with appropriate electrical and optical connectors.*” VPG-1012 at ¶ 26. This construction is consistent with the language of the ‘358 Patent and the industry definition of this term. *Id.*

IX. GROUNDS FOR INVALIDITY

A. Relevant law

A patent claim is invalid under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (U.S. 2007) (citations omitted). “In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *Id.* at 420. Moreover, “when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.” *Apple Inc. v. Samsung Electronics*

Co., Ltd., 839 F.3d 1034, 1072 (Fed. Cir. 2016) (citations omitted). Finally, “[a] simple substitution of one known element for another makes the claimed invention obvious.” *Id.* at 1077 (internal quotations omitted).

B. GROUND 1

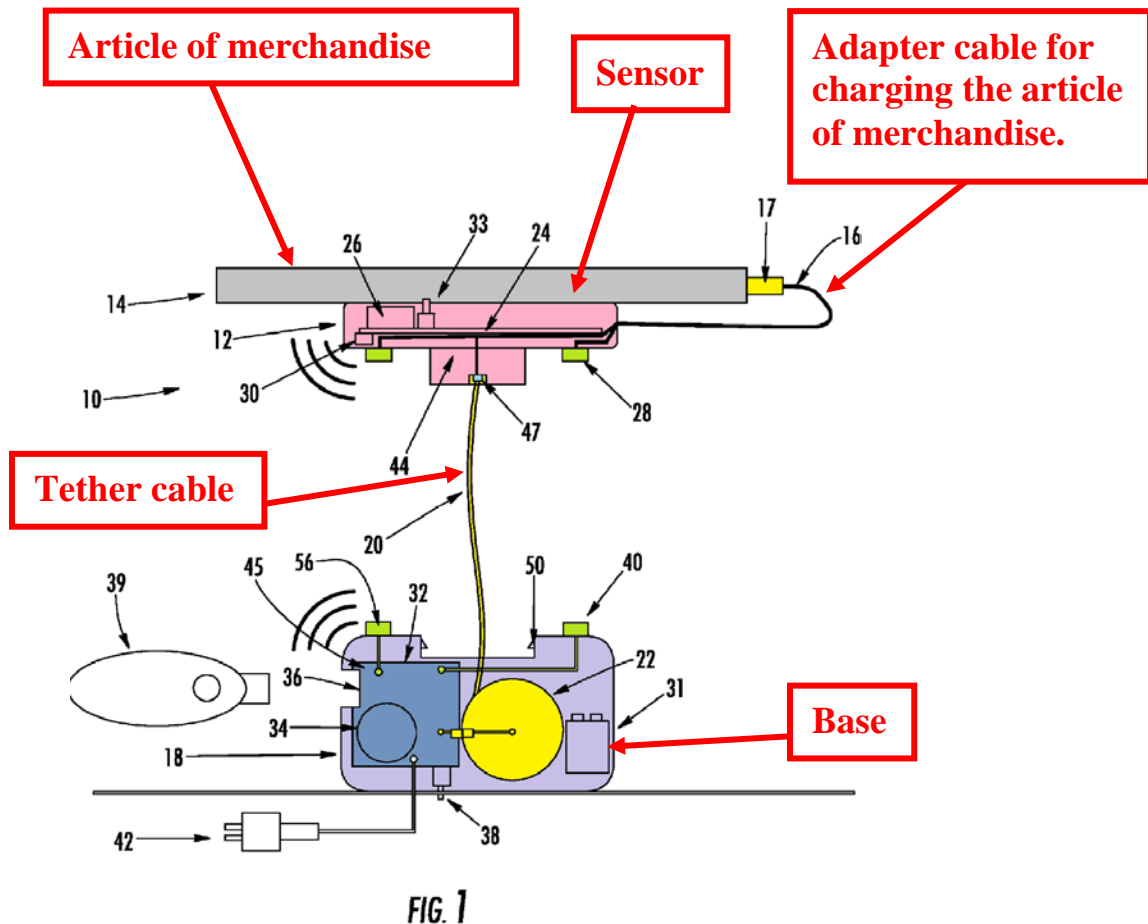
1. Overview of the Prior Art

a. Grant

U.S. Patent Pub. No. 2015/0235533 (“Grant”) was published on August 20, 2015, and, therefore, Grant is prior art against the ‘358 Patent under 35 U.S.C. § 102(a)(1). Grant is “directed to security systems for securing an item of merchandise from theft” and, therefore, is analogous art with respect to the ‘358 Patent.

Grant discloses a security system having “a sensor configured to be coupled to an article of merchandise and a base configured to removably support the sensor and the item of merchandise thereon.” VPG-1004 at [0006]. A tether cable operably connects the sensor to the base. *Id.* The tether cable “includes at least one conductor for defining a sense loop,” which may be used to detect various security events, such as “the cable being cut, shorted, and/or disconnected.” *Id.* at [0007], [0017]. The security system also has a lock mechanism configured to lock the sensor to the base, such that the sensor cannot be lifted from the base when the lock mechanism is engaged. *Id.* at [0036].

The security system disclosed in Grant is depicted in Figure 1, which is reproduced and annotated below.



VPG-1004, Figure 1 (annotated)

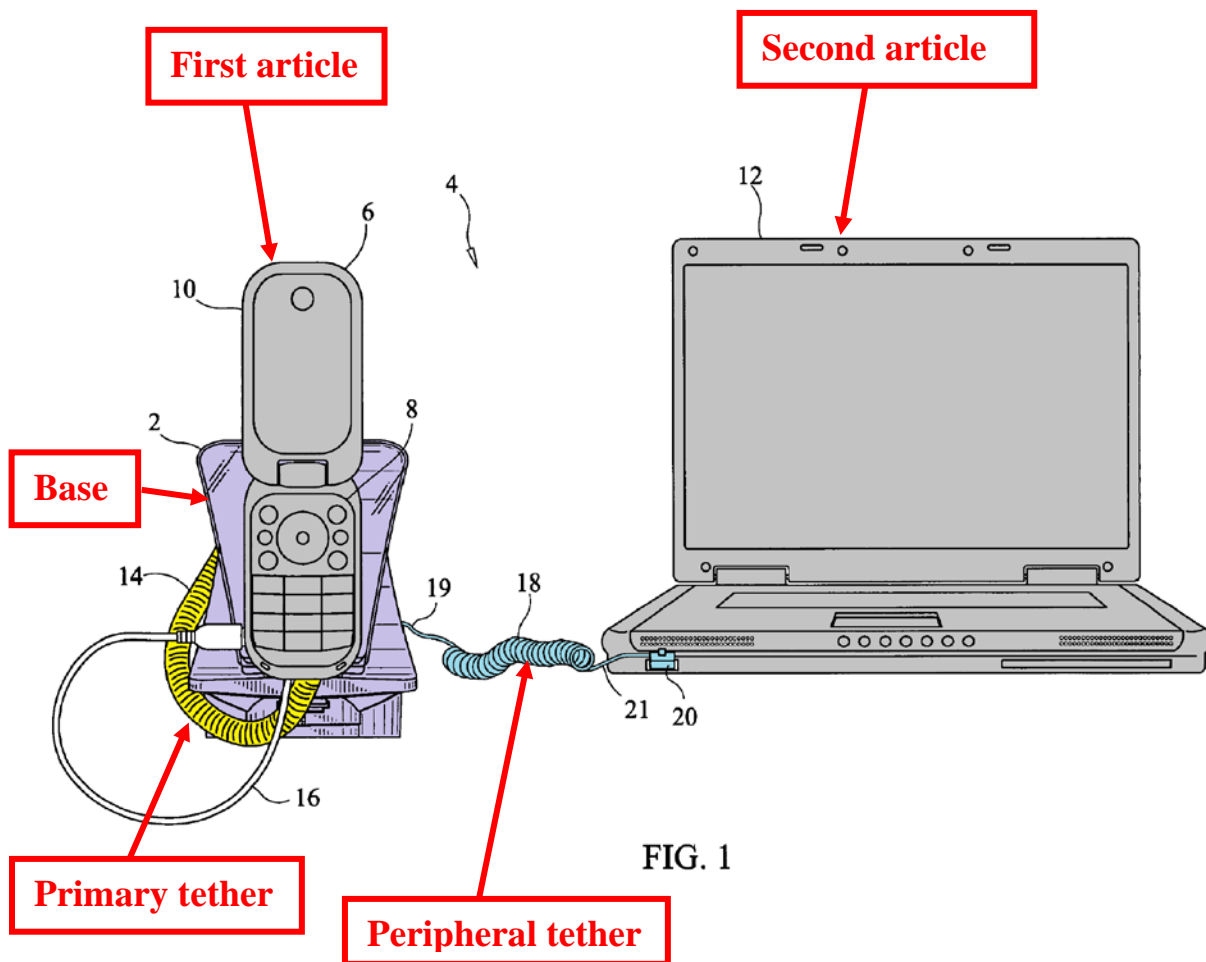
This Petition cites Grant as the base reference in Grounds 1 and 2.

b. Marszalek

U.S. Patent No. 8,395,907 (“Marszalek”) issued on March 12, 2013, and, therefore, Marszalek is prior art against the ‘358 Patent under 35 U.S.C. § 102(a)(1). Marszalek “relates to a multi-sensor alarm apparatus, a system, and/or a method for

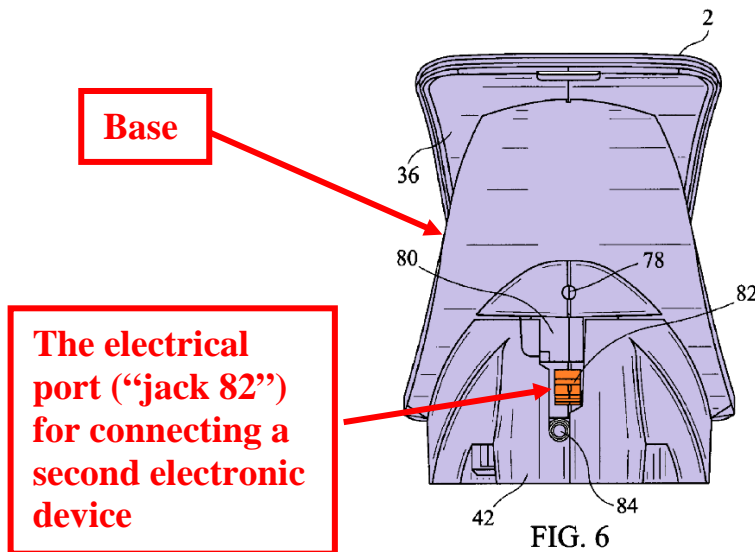
securing articles” and, therefore, is analogous art with respect to the ‘358 Patent. VPG-1005 at 1:7-9.

Analogously to the ‘358 Patent, Marszalek discloses a merchandise security system that includes a primary sensor (referred to as a “head unit”) configured to be attached to a first article of merchandise. *Id.* at 3:13-14. A base assembly removably supports the sensor, and a primary tether operably connects the sensor to the base. *Id.* at 3:10-13. Most importantly, Marszalek discloses that the security system “may have a *peripheral tether* and/or a *peripheral sensor* that may secure a *second* article, such as, for example, a portable electronic device to the base.” *Id.* at 1:21-24 (emphasis added). The security system disclosed in Marszalek is depicted in Figure 1, which is reproduced and annotated below.



VPG-1005, Figure 1 (annotated)

Analogously to the auxiliary port claimed in the ‘358 Patent, Marszalek teaches that the base has a dedicated electrical port (“jack 82”) for receiving a connector of the peripheral tether. *Id.* at 11:32-36. Marszalek teaches that the security system is configured “to monitor the integrity of any combination of the components,” including the integrity of the peripheral tether and the peripheral sensor. *Id.* at 3:36-40. The electrical port for securing a second electronic device is depicted in Figure 6 of Marszalek, which is reproduced and annotated below.



VPG-1005, Figure 6 (annotated)

This Petition cites Marszalek to establish that the ‘358 Patent did not invent a merchandise security system in which the base has an auxiliary port for connecting and securing a second electronic device in addition to the article of merchandise.

c. Wheeler

U.S. Patent Pub. No. 2013/0168527 (Wheeler) was published on July 4, 2013 and, therefore, Wheeler is prior art against the ‘358 Patent under 35 U.S.C. § 102(a)(1). Wheeler “relates to security/alarm systems that protect against theft in retail environments” and, therefore, is analogous art with respect to the ‘358 Patent. VPG-1006 at [0001].

Wheeler discloses a security system for securing multiple “*complementary products.*” *Id.* at [0049] (emphasis added). Wheeler teaches that the security system has a primary tether (“power/security cord 34”) configured to secure the primary

article of merchandise, and additional tether cables (“other cords 40/42”) configured to secure electronic devices that are *complementary* to the primary article of merchandise—*i.e.*, auxiliary devices. *Id.*; *see also* Part VIII(1). Wheeler discloses an example in which the primary article of merchandise is a computer tablet and states that “[i]t may be desirable to support the tablet with another device such as, for example, a keyboard/docking station.” *Id.*

Figure 6, which is reproduced and annotated below, depicts the multi-tether configuration of Wheeler for securing complementary electronic devices.

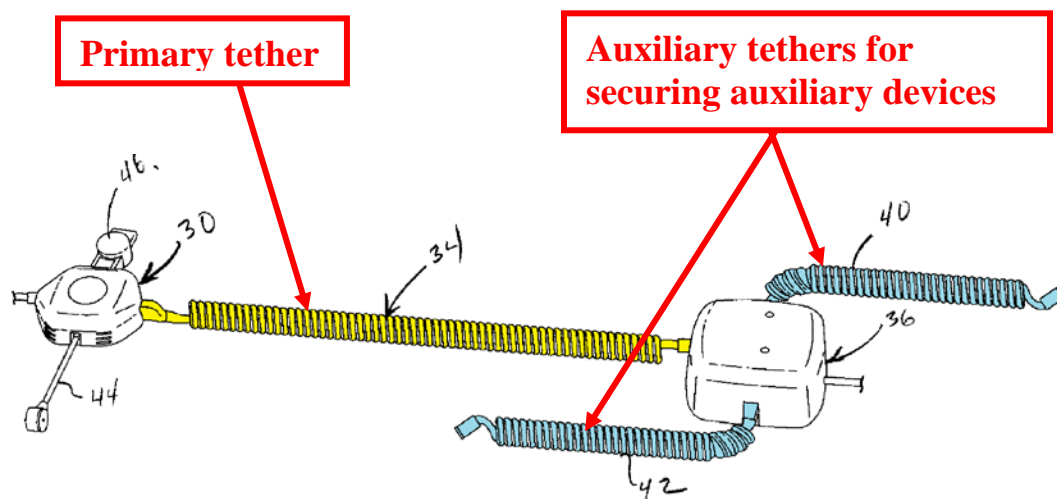


Fig. 6

VPG-1006, Figure 6 (annotated)

This Petition cites Wheeler to establish that merchandise security systems for displaying an article of merchandise *and* an auxiliary device were known prior to the ‘358 Patent.

d. Motivation for combining Grant, Marszalek, and Wheeler and rationale for reasonable expectation of success

- i. A POSA would have been motivated to improve Grant's security system to address a known market need

Prior to the '358 Patent, there was a known market need for “a system and/or a method for securing *two or more articles* in a self-contained, all-in-one configuration.” VPG-1005 at 2:31-33 (emphasis added). Although Grant discloses a security system that has multiple advantageous features, it also has a major limitation of being configured to only secure a *single* article of merchandise. *See* VPG-1004 at [0005] (disclosing that “[e]mbodiments of the present invention are directed to security systems for securing an item of merchandise”) (emphasis added). To address the known market need stated above, a POSA would have been motivated to improve the security device disclosed in Grant, such that it could be used to secure two or more articles of merchandise—this motivation would have led to Marszalek and Wheeler. VPG-1012 at ¶ 37.

- ii. Marszalek teaches a security system configured to secure multiple articles of merchandise

As established in Part IX(B)(1)(b), *supra*, Marszalek teaches a system for securing *one or more* articles, wherein, in addition to the primary tether securing a first article of merchandise, “[t]he system may have a peripheral tether and/or a peripheral sensor that may secure a *second* article, such as, for example, a portable

electronic device.” VPG-1005 at 1:9-12, 1:21-24. To achieve this additional security feature, the base has an electrical port (“jack 82”) configured to receive a connector of the peripheral tether, wherein the security system monitors the integrity of the peripheral tether connection, thereby protecting the second article of merchandise against unauthorized removal. *Id.* at 11:32-35, 14:41-44; VPG-1012 at ¶ 38.

- iii. Wheeler teaches a security system configured to secure an article of merchandise and an auxiliary device of the article of merchandise

As established in Part IX(B)(1)(c), *supra*, Wheeler teaches a merchandise security system in which multiple tethers are used to secure multiple electronic devices. VPG-1006 at [0049]. Wheeler teaches that it may be desirable to use a primary tether to secure an article of merchandise and to use a peripheral tether to secure an auxiliary device complementary to the article of merchandise, such as a keyboard or a docking station. *Id.*; VPG-1012 at ¶ 39.

- iv. A POSA would have been motivated to combine Grant with Marszalek and Wheeler, and this combination would yield an improved security system in which known components would perform their intended functions in an expected manner

It is well established that “[m]otivation to combine may be found explicitly or implicitly in market forces; design incentives; the interrelated teachings of multiple patents; any need or problem known in the field of endeavor at the time of invention and addressed by the patent; and the background knowledge, creativity, and common

sense of the person of ordinary skill.” *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013) (internal citations and quotations omitted). A POSA would have been motivated to combine Grant and Marszalek to attain an improved security system capable of securing multiple articles of merchandise. VPG-1012 at ¶ 40. This improvement could have been accomplished by disposing an electrical port taught in Marszalek in the base of the security device of Grant. *Id.* The electrical port would enable the security device to utilize a peripheral tether cable (as taught in Marszalek) to secure a second electronic device. *Id.* In addition, 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 in Wheeler. *Id.* at ¶ 41.

These modifications would not have required any undue experimentation and would produce an improved security system in which known components would perform their intended functions in an expected manner yielding a security system configured to secure an article of merchandise and an auxiliary device associated therewith. *Id.*; *see also* VPG-1004 at [0043] (stating that “it will be apparent to those skilled in the art that various modifications [to the security system] can be made without departing from the spirit and scope of the invention”); *see also* VPG-1005 at 8:37-39 (stating that a peripheral cable can secure “any articles sold and/or

displayed in an environment offering any article, product and/or other merchandise as known to one having ordinary skill in the art”) (emphasis added).

For the reasons set forth above, a POSA would have been motivated to combine Grant, Marszalek, and Wheeler to achieve an improved security system that would address a known market need for a security system configured to secure both an article of merchandise and its auxiliary device. VPG-1012 at ¶ 42. A POSA would have expected that the resulting security system to be fully functional for its intended purpose. *Id.*

C. Analysis: Claims 1-3, 16-18, and 29 are obvious over the combination of Grant, Marszalek, and Wheeler

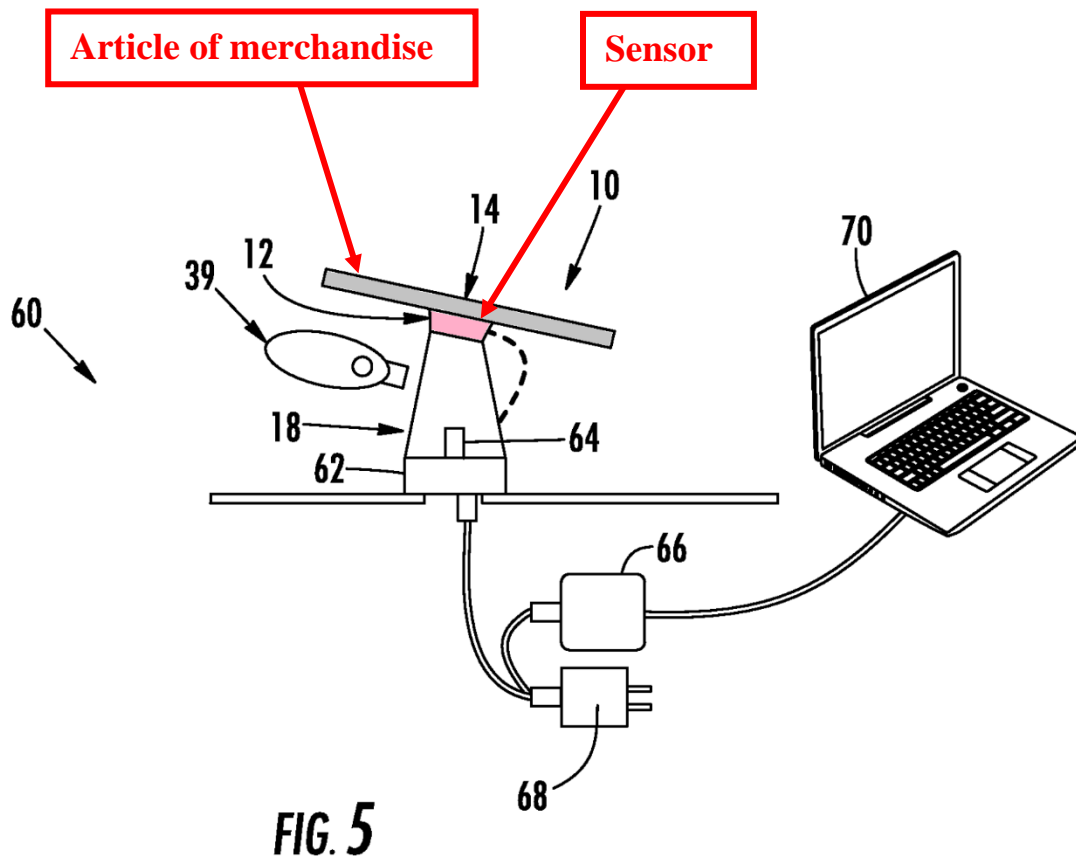
1. Claim 1

- a. “A merchandise security system for displaying and protecting an article of merchandise and an auxiliary device of the article of merchandise from theft”

Grant discloses “security systems for securing an item of merchandise from theft or unauthorized removal.” VPG-1004 at [0002]. As established in Part IX(B)(1)(d), *supra*, a POSA would have been motivated to combine Grant with Marszalek and Wheeler to achieve an improved merchandise security system configured to secure both an article of merchandise and a complementary auxiliary device. VPG-1012 at ¶ 66. Therefore, the combination of Grant, Marszalek, and Wheeler teaches the preamble of claim 1. *Id.*

- b. “a sensor that is secured to the article of merchandise and that detects removal of the article of merchandise from the sensor”

Grant discloses “a sensor 12 configured to be secured to an item of merchandise 14,” such that “[t]he sensor 12 may detect security events associated with the sensor and/or the item of merchandise 14, such as the item of merchandise being removed from the sensor.” VPG-1004 at [0017]. This feature is depicted in Figure 5, which is reproduced and annotated below.



VPG-1004 Figure 5 (annotated)

The disclosure quoted above establishes that Grant teaches the limitation “a sensor that is secured to the article of merchandise and that detects removal of the article of merchandise from the sensor.” VPG-1012 at ¶ 67.

c. “a base that removably supports the sensor and the article of merchandise thereon”

Grant discloses that “[t]he security system 10 may also include *a base 18 that is configured to removably support the sensor 12 and the item of merchandise 14 thereon.*” VPG-1004 at [0017] (emphasis added). The base supporting the sensor is depicted in Figure 5, which is reproduced and annotated below.

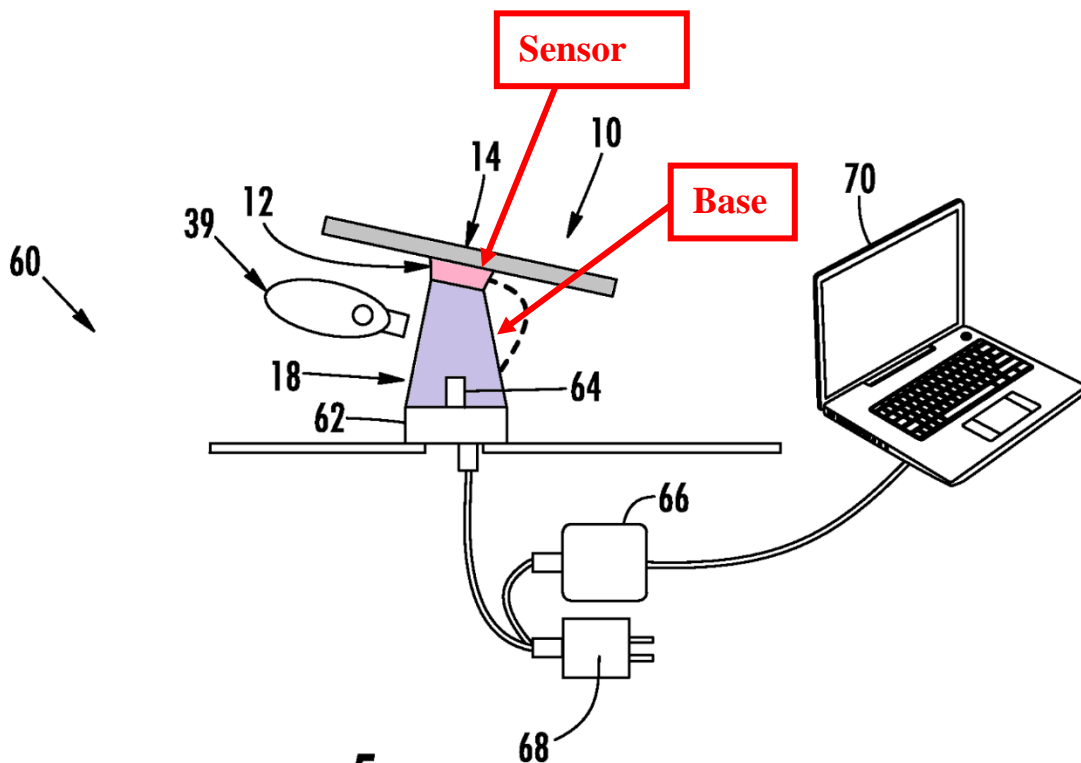


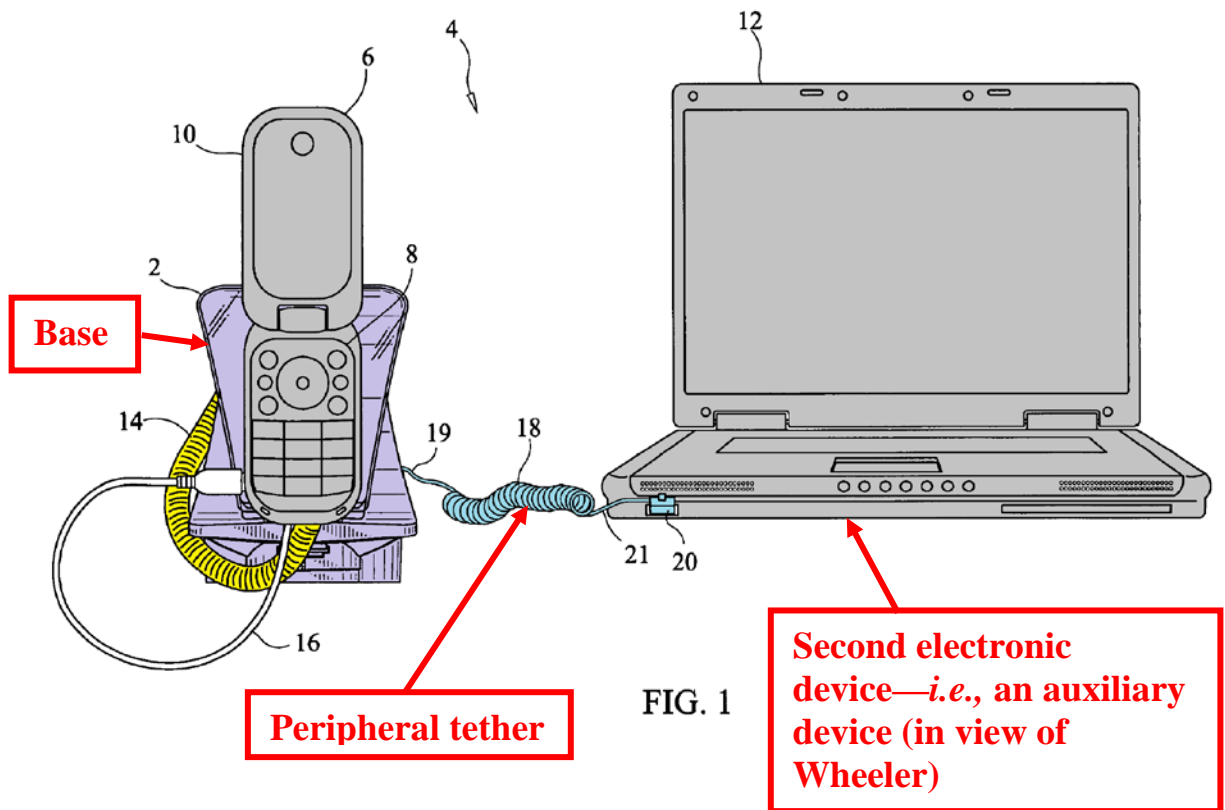
FIG. 5

VPG-1004, Figure 5 (annotated)

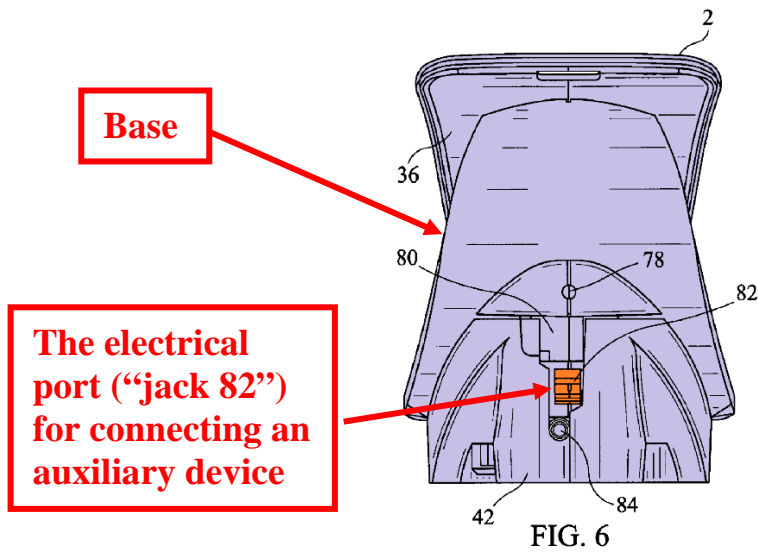
The disclosure quoted above establishes that Grant teaches the limitation “a base that removably supports the sensor and the article of merchandise thereon.” VPG-1012 at ¶ 68.

- d. “wherein the base further comprises an auxiliary port that operably connects to the auxiliary device”

As established in Part IX(B)(1)(d), *supra*, a POSA would have been motivated to improve the security system of Grant in view of Marszalek and Wheeler to achieve an improved security system configured to secure an article of merchandise *and* an auxiliary device. *See* VPG-1012 at ¶ 69. Marszalek in view of Wheeler teaches that an auxiliary device can be secured using a peripheral tether cable. *See* VPG-1005 at 3:27-30. Marszalek further teaches that the base has an electrical port (“jack 82”) configured to receive a connector of the peripheral tether. *Id.* at 11:32-35 (disclosing that “[t]he first end 19 of the peripheral tether cable 18 may have a network plug, such as, for example, an RJ-45 plug that may be received by a jack 82”). These features of Marszalek are depicted in Figures 1 and 6, which are reproduced and annotated below.



VPG-1005, Figure 1 (annotated)



VPG-1005, Figure 6 (annotated)

As established in Part IX(B)(1)(d), *supra*, it would have been obvious to modify the base taught in Grant by integrating the electrical port of Marszalek. VPG-1012 at ¶ 70. Furthermore, in the security device achieved by the combination of Grant, Marszalek, and Wheeler, this electrical port would have been configured to receive the peripheral cable for securing an auxiliary device. *See* Part IX(B)(1)(d); *see also id.* As established in Part VIII(2), *supra*, an electrical port for connecting an auxiliary device is an “*auxiliary port*.” *Id.* Therefore, the combination of Grant, Marszalek, and Wheeler teaches an auxiliary port disposed within the base and configured to receive an input connector of the peripheral tether cable. *Id.*

Next, with respect to the limitation “operably connect,” Marszalek discloses “[t]he peripheral tether cable 18, the peripheral sensor 20 and/or the network plug ... capable of ... *electronically securing* the article 12.” VPG-1005 at 11:39-43 (emphasis added). Marszalek, in view of Wheeler, teaches that one end of the peripheral tether is connected to the base while the opposite end is connected to the peripheral sensor attached to an auxiliary device. *Id.* at 11:32-42; VPG-1012 at ¶ 71. Marszalek teaches that the security system is configured to monitor the integrity of each of these connections to detect “if the tether is cut, removed and/or tampered with.” *Id.* at 3:34-40, 1:61-64; *see also* VPG-1012 at ¶ 71. As established in Part VIII(3), *supra*, a connection whose integrity can be monitored by the security system is an “*operable connection*.” Therefore, Marszalek (in view of Wheeler) teaches that

the auxiliary device is *operably connected* to the auxiliary port using a peripheral tether. *Id.* at ¶ 71.

Thus, for the reasons set forth above, the combination of Grant, Marszalek, and Wheeler teaches the limitation “wherein the base further comprises an auxiliary port that operably connects to the auxiliary device.” *Id.* at ¶ 72.

e. “a cable operably connected to the sensor and the base”

Grant discloses that “the security system includes a cable connected to the sensor at one end and connected to the base at an opposite end, wherein the cable includes at least one conductor for defining a sense loop.” VPG-1004 at [0007]. The sense loop “may be used to detect various security events associated with the cable 20, such as the cable being cut, shorted, and/or disconnected.” *Id.* at [0017]. Therefore, Grant teaches that the cable is configured to be operably connected to the base and the sensor. VPG-1012 at ¶ 73.

Moreover, Grant specifically states that “[t]he sensor 12 may include an additional pressure switch 47 that is configured to *operably* engage an end of the cable 20, and that “[t]he base 18 may include a recoiler 22,” with “an end of the cable 20 [being] *operably* engaged with the recoiler.” VPG-1004 at [0023], [0033] – [0034] (emphasis added). Figure 1, which is reproduced and annotated below, depicts the cable being operably connected to the sensor and the base. VPG-1012 at ¶ 74.

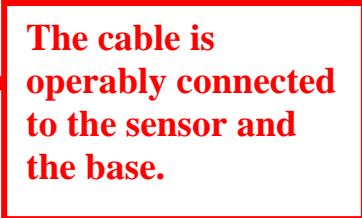


FIG. 1

The analysis provided above establishes that Grant teaches the limitation “a cable operably connected to the sensor and the base.” VPG-1012 at ¶¶ 73-74.

- f. “wherein the base transfers power to the auxiliary port for powering the auxiliary device”

Marszalek in view of Wheeler discloses that the base is configured to transfer power to a peripheral sensor attached to an auxiliary device. VPG-1005 at 11:13-20 (disclosing that “[t]he peripheral tether cable 18 may communicate power and/or data between the main body 36 [of the base assembly] and the peripheral sensor 20”). In turn, Grant teaches that power can be transferred from a sensor to an electronic device to which the sensor is attached using an adapter cable. VPG-1004

at [0017]. Thus, it would have been 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. VPG-1012 at ¶ 75-76.

A POSA would have been motivated to enable the base to charge the auxiliary device because, as Marszalek itself recognizes, “[m]any [devices] require power connections and/or data connections to allow an operational interaction between the consumer and the [devices]”. VPG-1005 at 1:51-54; VPG-1012 at ¶ 77. This improvement would not have required any undue experimentation and would predictably and expectedly yield an improved security system in which the base is configured to transfer power not only to the article of merchandise, but also to an auxiliary device, enabling the prospective customers to interact with both devices. *Id.*

Accordingly, combination of Grant, Marszalek, and Wheeler teaches the limitation “wherein the base transfers power to the auxiliary port for powering the auxiliary device.” *Id.* at ¶ 78.

g. “wherein a security signal is transmitted through the auxiliary port that is used to detect removal of the auxiliary device from the base.”

Grant discloses a “sense loop” technique which involves using “one or more electrical conductors for transmitting ... *security ... signals*.” VPG-1004 at [0031] (emphasis added). Grant teaches that, in this manner, the electrical conductors define

“a sense loop” that can detect “various *security events* ... such as *the cable being cut, shorted, and/or disconnected.*” *Id.* at [0017] (emphasis added); *see also id.* at [0007].

As established in Part IX(C)(1)(d), *supra*, the security system attained by combining Grant, Marszalek, and Wheeler would include an auxiliary port configured to receive an input connector of a peripheral tether cable for securing an auxiliary device. *Id.* at ¶ 80. A POSA would have been motivated to use the “sense loop” technique taught in Grant to secure the auxiliary device. *Id.* For this reason, a POSA would have been motivated to configure the security system such that the auxiliary port would be a part of the “sense loop,” such that a security signal would be transmitted through the auxiliary port to detect unauthorized removal of the auxiliary device from the base. *Id.* This improvement would have been straightforward, would not have required any undue experimentation, and would produce a predictable and expected result—a security system configured to secure the auxiliary device against unauthorized removal. *Id.* at ¶ 81.

For the reasons set forth above, the combination of Grant, Marszalek, and Wheeler teaches the limitation “wherein a security signal is transmitted through the auxiliary port that is used to detect removal of the auxiliary device from the base.” VPG-1012 at ¶ 82.

h. CONCLUSION: Claim 1 is obvious over the combination of Grant, Marszalek, and Wheeler

The combination of Grant, Marszalek, and Wheeler teaches every limitation of claim 1 of the '358 Patent. *Id.* at ¶ 83. Accordingly, claim 1 of the '358 Patent claims nothing more than an obvious combination of well-known components and technologies performing their intended functions in an expected and predictable manner. *Id.* The governing law is unambiguous: “when a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *KSR Int'l Co.*, 550 U.S. at 417 (citation omitted). Therefore, claim 1 is obvious and should be invalidated.

2. Claim 2

a. “The merchandise security system of claim 1, wherein the auxiliary port is configured to receive an input connector operably connected to the auxiliary device.”

As established in Part IX(C)(1)(e), *supra*, the combination of the cited art teaches that one end of the peripheral tether cable is operably connected to the auxiliary device, while the other end has a network plug configured to be received within the auxiliary port (“jack 82”). *See* VPG-1005 at 11:32-35 (“The first end 19 of the peripheral tether cable 18 may have a *network plug*, such as, for example, an RJ-45 plug that *may be received by a jack 82.*”) (emphasis added). Therefore, the

combination of the cited prior art teaches the limitation “wherein the auxiliary port is configured to receive an input connector operably connected to the auxiliary device.” VPG-1012 at ¶ 84. Accordingly, claim 2 is obvious.

3. Claim 3

- a. “The merchandise security system of claim 2, wherein the security signal is configured to be transmitted through the cable and the auxiliary port for detecting removal of the input connector from the auxiliary port.”

As established in Part IX(C)(1)(g), *supra*, the combination of Grant, Marszalek, and Wheeler teaches that “a security signal transmitted through the auxiliary port that is used to detect removal of the auxiliary device from the base.” As established above, Marszalek teaches that the peripheral tether, which is operably connected to the auxiliary device, has an input connector (“a network plug”) configured to be received within the auxiliary port. VPG-1005 at 11:32-35; *see also* Part IX(C)(2). Therefore, the security signal transmitted through the cable and the auxiliary port would enable detection of removal of the input connector from the auxiliary port. VPG-1012 at ¶ 85.

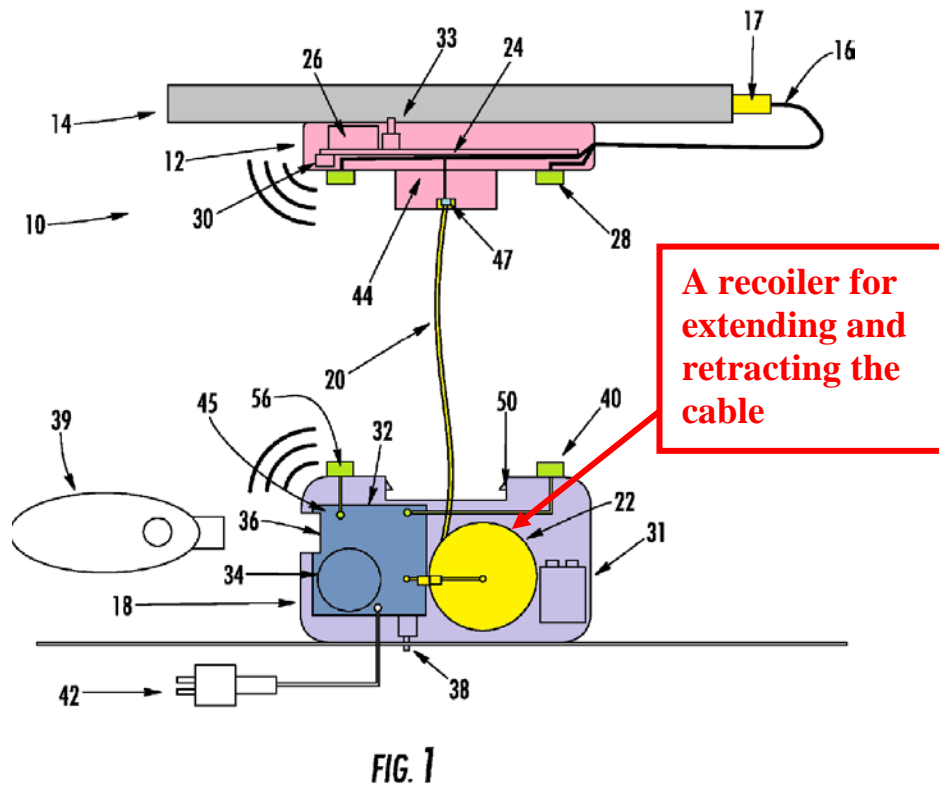
Furthermore, Grant teaches that a security signal is also configured to be transmitted through the cable. VPG-1004 at [0031] (disclosing that “the cable 20 may include one or more electrical conductors for transmitting ... *security ... signals*”) (emphasis added). Thus, the combination of Grant, Marszalek, and

Wheeler teaches the limitation “wherein the security signal is configured to be transmitted through the cable and the auxiliary port for detecting removal of the input connector from the auxiliary port.” VPG-1012 at ¶ 85. Therefore, claim 3 is obvious.

4. Claim 16

- a. “The merchandise security system of claim 1, further comprising a recoiler comprising a rotatable member, wherein the cable is configured to be unwound from and wound on the rotatable member as the cable is extended and retracted.”

Grant discloses that the tether cable is connected to a recoiler. VPG-1004 at [0017]. Grant further discloses that, “[a]s such, the cable 20 may be extended from the base 18 when the sensor 12 and the item of merchandise 14 are lifted from the base, and the cable may be retracted into the base when the sensor and the item of merchandise are returned to the base.” *Id.* at [0023]. The recoiler is depicted in Figure 1 of Grant, which is reproduced and annotated below.



VPG-1004, Figure 1 (annotated)

A POSA would understand that the recoiler includes a reel that is configured to rotate to unwind the tether when the sensor is lifted from the base and, then, to rotate in the opposite direction to retract the tether when the sensor is placed on the base. See VPG-1004 at [0020] (disclosing that “[i]t is common practice for the products to be tethered via a *reeled* power cord”) (emphasis added); VPG-1012 at ¶ 87. Accordingly, the combination of Grant, Marszalek, and Wheeler teaches the limitation “a recoiler comprising a rotatable member, wherein the cable is configured to be unwound from and wound on the rotatable member as the cable is extended and retracted.” *Id.* Therefore, claim 16 is obvious.

5. Claim 17

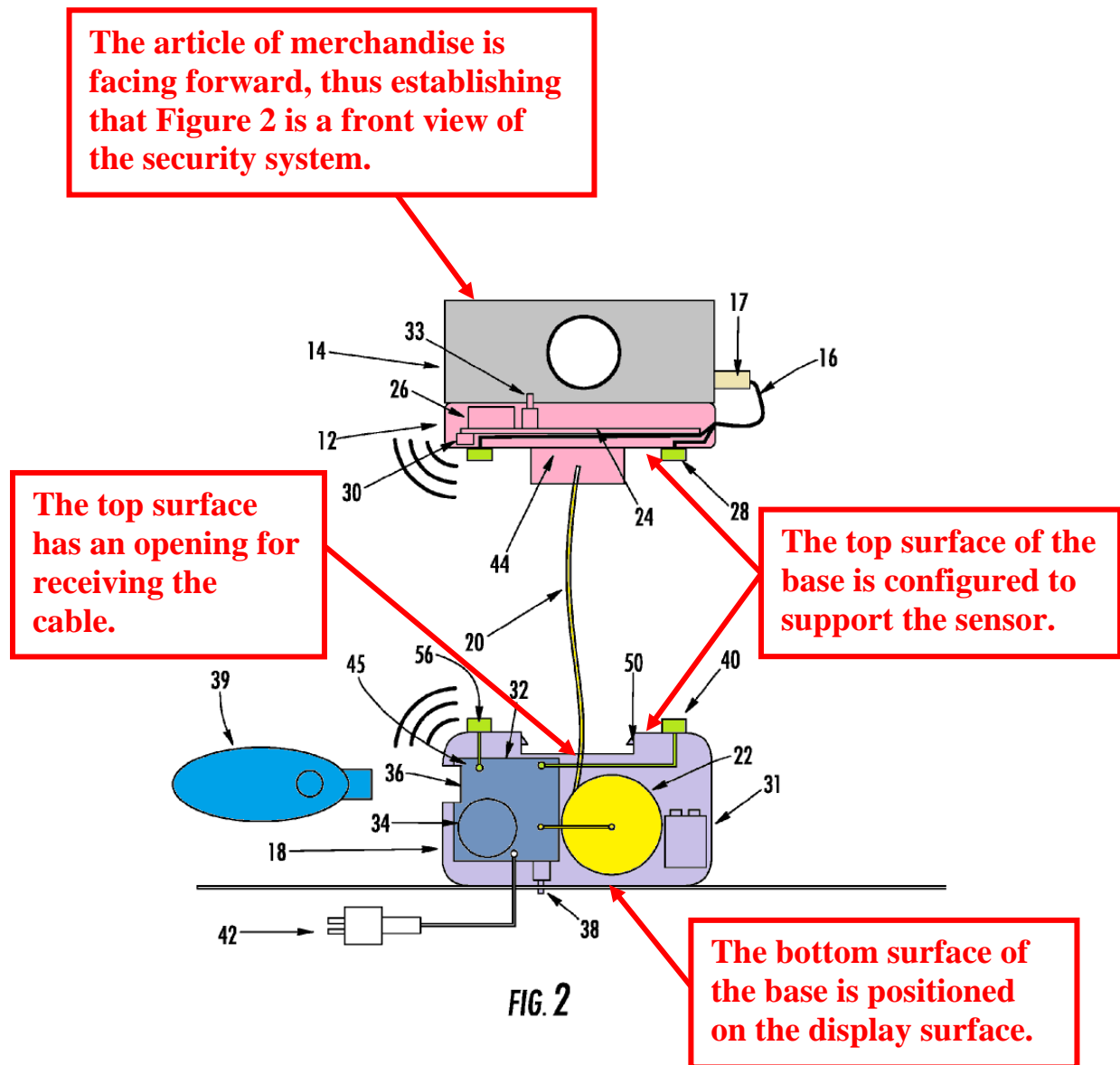
- a. “The merchandise security system of claim 16, further comprising a lock mechanism configured to lock the sensor to the base in a locked position when the sensor is seated on the base to thereby prevent the rotatable member from rotating.”

Grant discloses that a “lock mechanism 50 may be disposed within the base 18 for locking the base to the sensor 12 to prevent the sensor and item of merchandise 14 from being lifted from the base.” VPG-1004 at [0036]. VPG-1012 at ¶ 88. Grant further discloses that the tether cable is inaccessible when the sensor is locked to the base. VPG-1004 at [0036]. A POSA would understand that, because the lock mechanism prevents the sensor from being lifted from the base, and the tether is inaccessible, the tether cannot extend or retract while the sensor is locked to the base. VPG-1012 at ¶ 88. Therefore, the reel of the recoiler would remain *static* while the sensor is locked, and the tether cable would not be wound or unwound on the reel. *Id.* Accordingly, Grant teaches the limitation “a lock mechanism configured to lock the sensor to the base in a locked position when the sensor is seated on the base to thereby prevent the rotatable member from rotating.” *Id.* Therefore, claim 17 is obvious.

6. Claim 18

- a. “The merchandise security system of claim 1, wherein the base comprises a top surface for supporting the sensor, a bottom surface for being positioned on a display surface, a side surface, and a rear surface, wherein the auxiliary port is disposed on the rear surface, and wherein an opening is defined in the top surface for receiving the cable.”

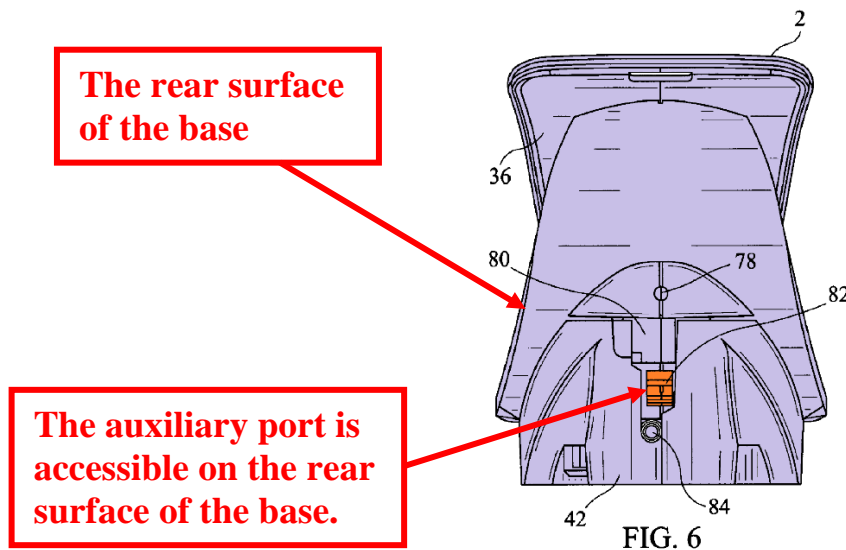
Figure 2 of Grant depicts a *front view* of the security system, as evidenced by the article of merchandise facing forward. VPG-1004 at Figure 2; VPG-1012 at ¶ 89. Figure 2 depicts that the base has a top surface supporting the sensor and a bottom surface positioned on a display surface. VPG-1004 at Figure 2. Figure 2 further depicts that the top surface has an opening for receiving the cable. *Id.*; VPG-1012 at ¶ 89. Figure 2 is reproduced and annotated below.



VPG-1004 at Figure 2 (annotated)

Next, Marszalek in view of Wheeler teaches that the auxiliary port is accessible on a *rear surface* of the base. VPG-1005 at Figure 6; VPG-1012 at ¶ 90. Figure 6 of Marszalek, which is reproduced and annotated below, provides a rear

plan view of the base depicting that the auxiliary port (“jack 82”) is accessible on the rear surface of the base. VPG-1005 at 7:27-29, Figure 6.



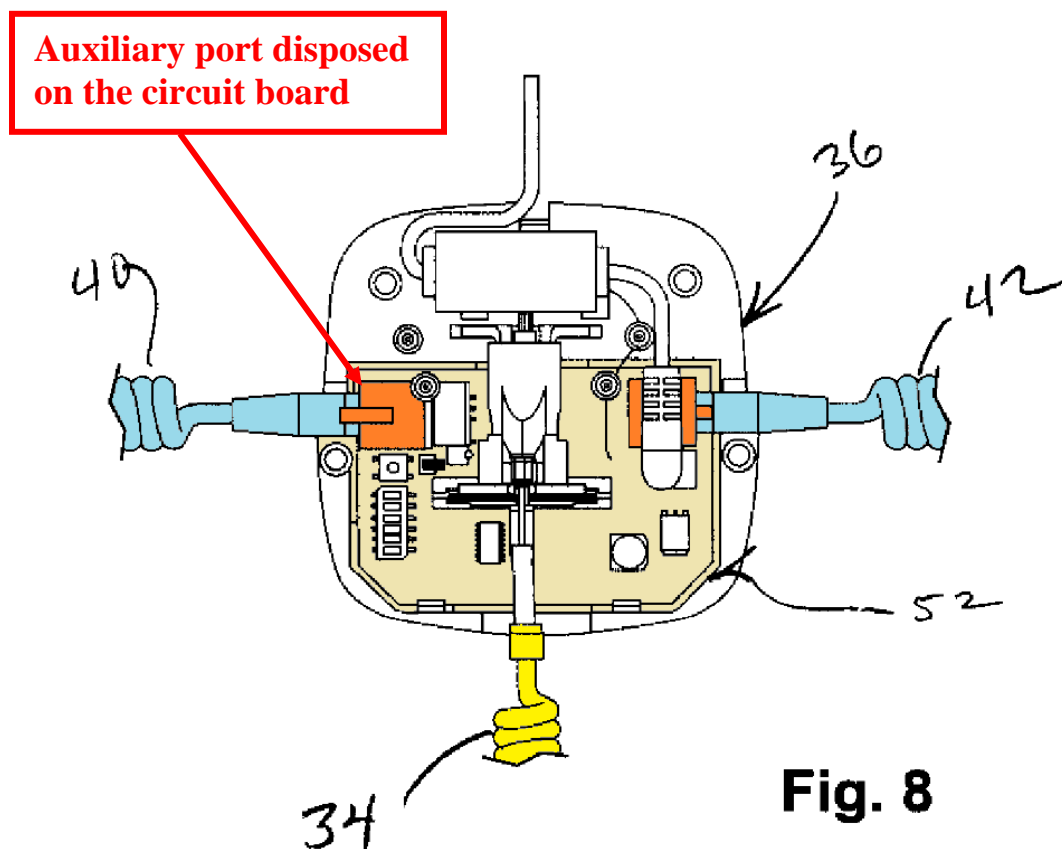
VPG-1005, Figure 6 (annotated)

The analysis provided above establishes that Grant teaches the base comprising a top surface for supporting the sensor and having an opening for receiving the cable and a bottom surface for being positioned on a display surface, while, Marszalek teaches that the auxiliary port is accessible on the rear surface of the base. VPG-1012 at ¶ 91. Therefore, the combination of the cited prior art renders claim 18 obvious.

7. Claim 29

- a. “The merchandise security system of claim 1, further comprising a printed circuit board disposed within the base and electrically connected to the cable with a plurality of electrical wires, wherein the auxiliary port is disposed on the printed circuit board.”

Grant discloses that “the base 18 may include a *PCB 32*, circuitry, or the like that is *in electrical communication with the cable 20*.” VPG-1004 at [0023] (emphasis added). Next, Wheeler teaches that auxiliary ports for receiving connectors of the auxiliary tethers can be disposed on the same circuit board to which the primary tether is electrically connected. VPG-1006 at [0051], Figure 8; VPG-1012 at ¶ 92. Figure 8 of Wheeler, which depicts this feature, is reproduced and annotated below.



VPG-1006, Figure 8 (annotated)

Therefore, claim 29 is obvious.

D. GROUND 2

1. Overview of the Prior Art

a. Grant, Marszalek, and Wheeler

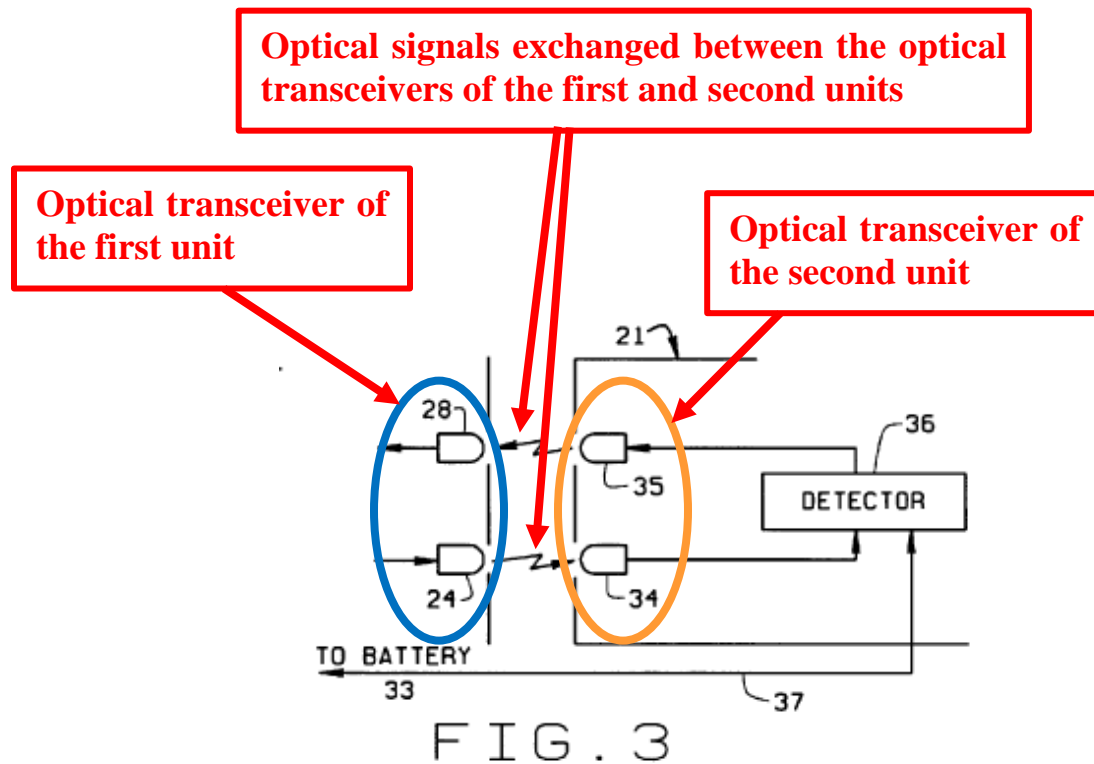
Summaries of Grant, Marszalek, and Wheeler and the motivation for their combination are provided in Part IX(B)(1), *supra*.

b. Vogt

U.S. Patent No. 5,912,619 (“Vogt”) issued on June 15, 1999 and, therefore, is prior art against the ‘358 Patent under 35 U.S.C. § 102(a)(1). Vogt discloses a security system for securing objects and, therefore, is analogous art with respect to the ‘358 Patent. VPG-1008 at 1:14-21.

Vogt discloses a sensing technique for monitoring the integrity of a connection of two conjoined units using optical signals transmitted by their optical transceivers.² *Id.* at Abstract. Specifically, Vogt teaches that the optical transceivers are configured to exchange optical security signals with one another to detect removal of one of the units, as depicted in Figure 3, which is reproduced and annotated below. *Id.*

² Vogt discloses units 20 and 21 having transmitting optical transducers 24 and 34—*i.e.*, “optical transmitters”—and receiving optical transducers 28 and 35—*i.e.*, “optical receivers,” with each pair being housed within the same unit—as such, each pair is an “optical transceiver.” VPG-1014 at Abstract, 4:35-39, 4:50-53; 5:41-55; *see also* VPG-1014 at 1022-23 (defining “transducer”). *See* Part VIII(A), *supra*; *id.* at 347; VPG-1012 at ¶ 44.



VPG-1008, Figure 3 (annotated)

If both units remain operational and connected to one another, the signal exchange is successful. *Id.* However, if one of the units fails to receive an expected optical signal from the other unit, an alarm is triggered, indicating that the units have been separated, or the security system has been compromised otherwise. *Id.*; *see also id.* at Figure 9B (depicting two conjoined units used to monitor a connection securing an object—for example, a boat).

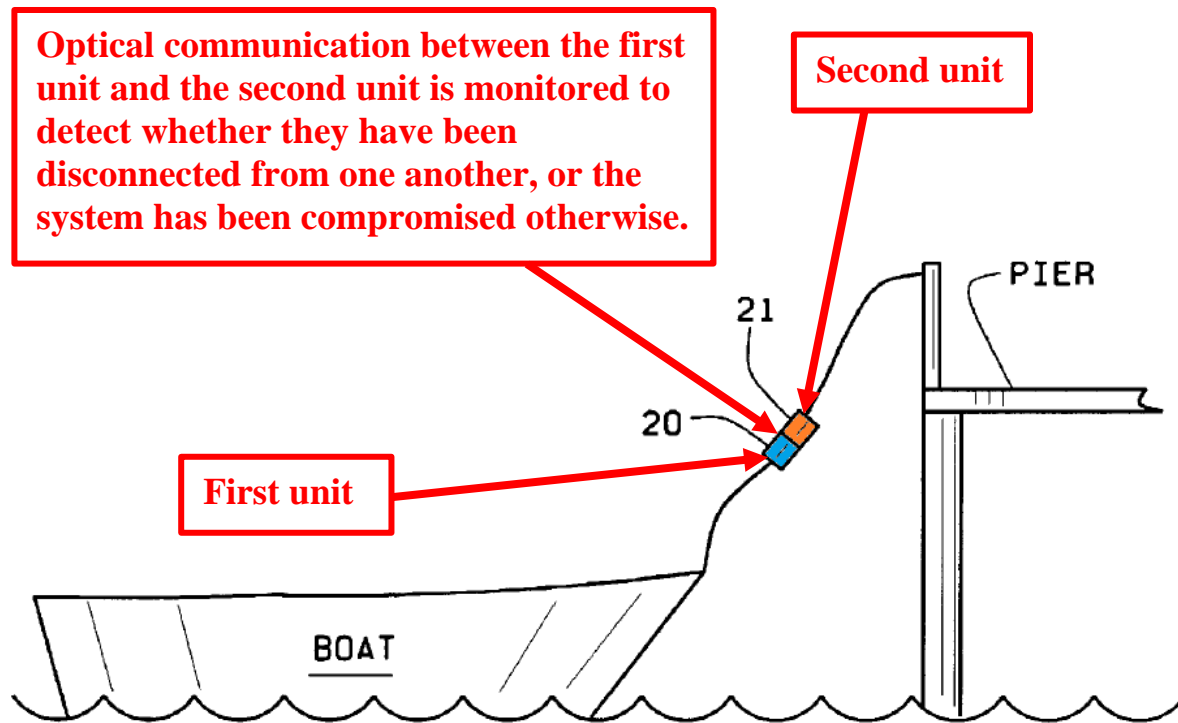


FIG. 9B

VPG-1005, Figure 9B (annotated)

This Petition cites Vogt to establish that the '358 Patent did not invent the technique of monitoring optical signals communicated between two proximally-placed optical transceivers to detect whether a cable has been cut or disconnected.

c. Motivation for combining Grant and Vogt and rationale for expected success of such combination

i. Motivation

Grant teaches that one of the key functionalities of the security system is its ability to detect security event associated with the tether cable, such as the cable

being cut or disconnected. VPG-1004 at [0017]; VPG-1012 at ¶ 47. Grant teaches that “[v]arious sensing techniques may be employed for determining whether the cable 20 has been cut or removed from the sensor 12 in an unauthorized manner.” VPG-1004 at [0032]. Grant illustrates multiple non-limiting, interchangeable sensing techniques for determining whether the tether cable has been cut or disconnected, including the following: a sense loop defined by electrical conductors; a sense loop defined by a fiber optic conductor; a conductor connected to a resistor at the end of the tether cable; a pressure switch at the sensor; and inductive coils disposed within the base, the tether, and/or the sensor. *Id.* at [0023], [0032] - [0035], [0043].

Thus, a POSA would understand that the security system of Grant is not limited to the sensing examples listed in its specification and could potentially be improved by employing a different sensing technique. VPG-1012 at ¶ 48; *see also* VPG-1004 at [0043] (stating that “foregoing description is provided for the purpose of illustration only, and not for the purpose of limitation”). A POSA would have been motivated to look at other security systems configured to monitor the integrity of cable connection. *Id.* This motivation would have led to Vogt, which identifies “provision of such a security system having an enhanced monitoring capability and which provides users the absolute highest level of assurances” as one of its core objectives and further states that “security of the system of the invention is virtually

assured.” VPG-1014 at 2:54-56, 8:14-15. Based on these laudatory statements, a POSA would have been motivated to use the sensing technique disclosed in Vogt to monitor the connection between the tether cable and the sensor in Grant’s security system. VPG-1012 at ¶ 48.

ii. Rationale for expected success

It would have been straightforward to integrate the two units (units 20 and 21) disclosed in Vogt into the cable and the sensor of Grant. *Id.* at ¶ 49. The units are self-sufficient and can be powered either by their own batteries or from another power source. VPG-1008 at 6:26-30; 5:44-49. In one exemplary implementation, the unit integrated into the end of the cable could be powered by the base via electrical conductors disposed within the cable (as taught in Grant), while the unit integrated into the sensor could be powered by the battery of the article of merchandise (as also taught in Grant). VPG-1004 at [0032], [0035]; VPG-1012 at ¶ 49. This implementation could have been accomplished by modifying the inductive-coil embodiment of Grant, such that the inductive coils integrated into the cable and the sensor would be replaced with Vogt’s units 20 and 21. *Id.*; VPG-1004 at [0035].

In the implementation described above, cutting of the cable or removal of the cable from the base would depower the optical transceiver within the cable, causing the optical signal exchange between the two units to fail, thereby indicating that a security event has occurred. VPG-1012 at ¶ 49. Likewise, if the cable became

disconnected from the sensor, the optical transceivers of the two units would be unable to communicate with one another, also indicating a security event. *Id.*

As the analysis provided above establishes, the combination of Grant and Vogt would have been within the skill of one in the art. *Id.* at ¶ 50. This combination would not have required any undue experimentation and would have produced a predictable and expected result—an improved security system in which the sensor and the cable are each equipped with an optical transceiver to exchange security signals with one another, wherein a failure of one of the units to receive an expected security signal indicates a security event. *Id.*

For the reasons set forth above, a POSA would have been motivated to use the optical sensing technique of Vogt in the security system of Grant and would have had a reasonable expectation that this combination would yield a functional security system operable for its intended purpose. *Id.*

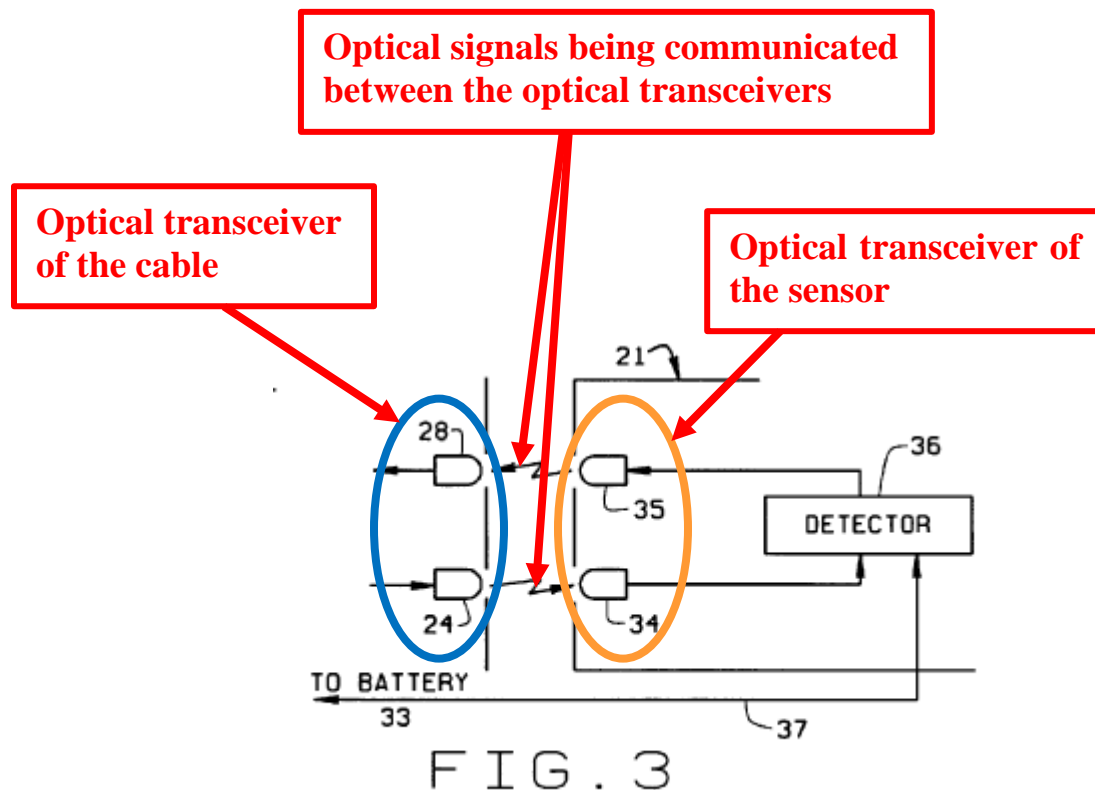
E. Analysis: claims 19, 20, 23, and 28 are obvious over the combination of Grant, Marszalek, Wheeler, and Vogt.

1. Claim 19

- a. “The merchandise security system of claim 1, wherein the cable and the sensor communicate optical signals with one another for detecting a security event associated with the sensor, the cable, or the item of merchandise.”

As established in Part IX(D)(1)(c), *supra*, it would have been obvious to use the sensing technique disclosed in Vogt to monitor the integrity of the connection

between the tether cable and the sensor in the security system of Grant. VPG-1012 at ¶ 93. As further established in Part IX(D)(1)(c), *supra*, this objective could be achieved by integrating the “first unit” of Vogt into the cable and integrating the “second unit” into the sensor. *Id.* Each unit has an optical transceiver, and upon integration of the units into the cable and sensor, their optical transceivers would be configured to communicate optical signals to one another, wherein failure of one of the units to receive the expected security signal, indicates a security event, such as removal of the cable from the sensor. *See* VPG-1008 at Abstract; VPG-1012 at ¶ 93. This implementation of the sensing technique of Vogt with the security system of Grant is explained in the annotated Figure 3 of Vogt, which is reproduced below.



VPG-1008, Figure 3 (annotated)

As the analysis provide above established, Grant in view of Vogt teaches the limitation “wherein the cable and the sensor communicate optical signals with one another for detecting a security event associated with the sensor, the cable, or the item of merchandise.” VPG-1012 at ¶ 93. Thus, claim 19 is obvious.

2. Claim 20

- a. “The merchandise security system of claim 1, wherein an end of the cable comprises an optical transceiver for communicating optical signals with the sensor.”

Vogt discloses a security system for monitoring integrity of a connection between two units, each equipped with an optical transceiver, wherein the optical

transceivers are configured to communicate optical signals to one another. VPG-1008 at Abstract; VPG-1012 at ¶ 94. As established in Part IX(D)(1)(c), *supra*, it would have been obvious to integrate one of the units disclosed in Vogt into the connector of the tether cable and to integrate the other unit into the sensor. VPG-1012 at ¶ 94. As a result of this modification, the cable and the sensor would each comprise an optical transceiver that would be configured to communicate with one another. *Id.* Therefore, the combination of Grant and Vogt teaches the limitation “wherein an end of the cable comprises an optical transceiver for communicating optical signals with the sensor.” *Id.* Thus, claim 20 is obvious.

3. Claim 23

- a. “The merchandise security system of claim 20, wherein the sensor comprises an optical transceiver for communicating optical signals with the optical transceiver of the cable.”

As established in Parts IX(D)(1)(c) and IX(E)(1)(a), *supra*, it would have been obvious to combine Grant and Vogt by integrating one transceiver into the tether cable and integrating another transceiver into the sensor. In the resultant security system, the transceiver of the sensor would be configured to communicate optical signals with the optical transceiver of the cable. *See* VPG-1008 at Abstract; *see also* VPG-1012 at ¶ 95. Therefore, claim 23 is obvious.

4. Claim 28

- a. “The merchandise security system of claim 23, wherein the optical transceiver of the cable is configured to communicate with the optical transceiver of the sensor for detecting disconnection of the cable from the sensor.”

As established in Part IX(D)(1)(c), *supra*, it would have been obvious to integrate the first unit of Vogt having a first optical transceiver into the end of the cable and integrate the second unit of Vogt having a second optical transceiver into the sensor. VPG-1012 at ¶ 96. Vogt teaches that, if the optical transceivers become separated, the communication between them would fail, thus triggering an alarm condition. *Id.*; *see also* VPG-1008 at Abstract (“Failure of the first unit to ... receive the return signals ... indicates either the units are no longer in close proximity; or, someone is trying to compromise the security system. Either condition constitutes an alarm condition for which an alarm is produced”).

Vogt specifically teaches that this security technique can be used to monitor a cable connection, as depicted in Figure 9B, which is reproduced and annotated below.

Optical transceivers of units 20 and 21 communicate optical signals to one another. If the units are disconnected, optical communication between units 20 and 21 fails, thus triggering an alarm.

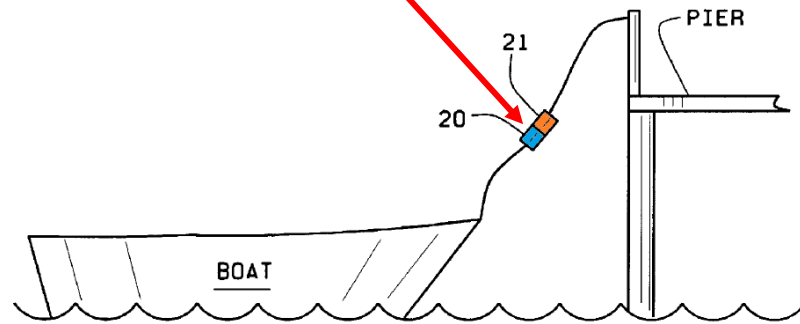


FIG. 9B

VPG-1008; Figure 9B (annotated)

As the analysis provided above establishes, the combination of Grant and Vogt teaches the limitation “the merchandise security system of claim 23, wherein the optical transceiver of the cable is configured to communicate with the optical transceiver of the sensor for detecting disconnection of the cable from the sensor.” VPG-1012 at ¶ 96. Thus, the cited prior art renders claim 28 obvious.

F. GROUND 3

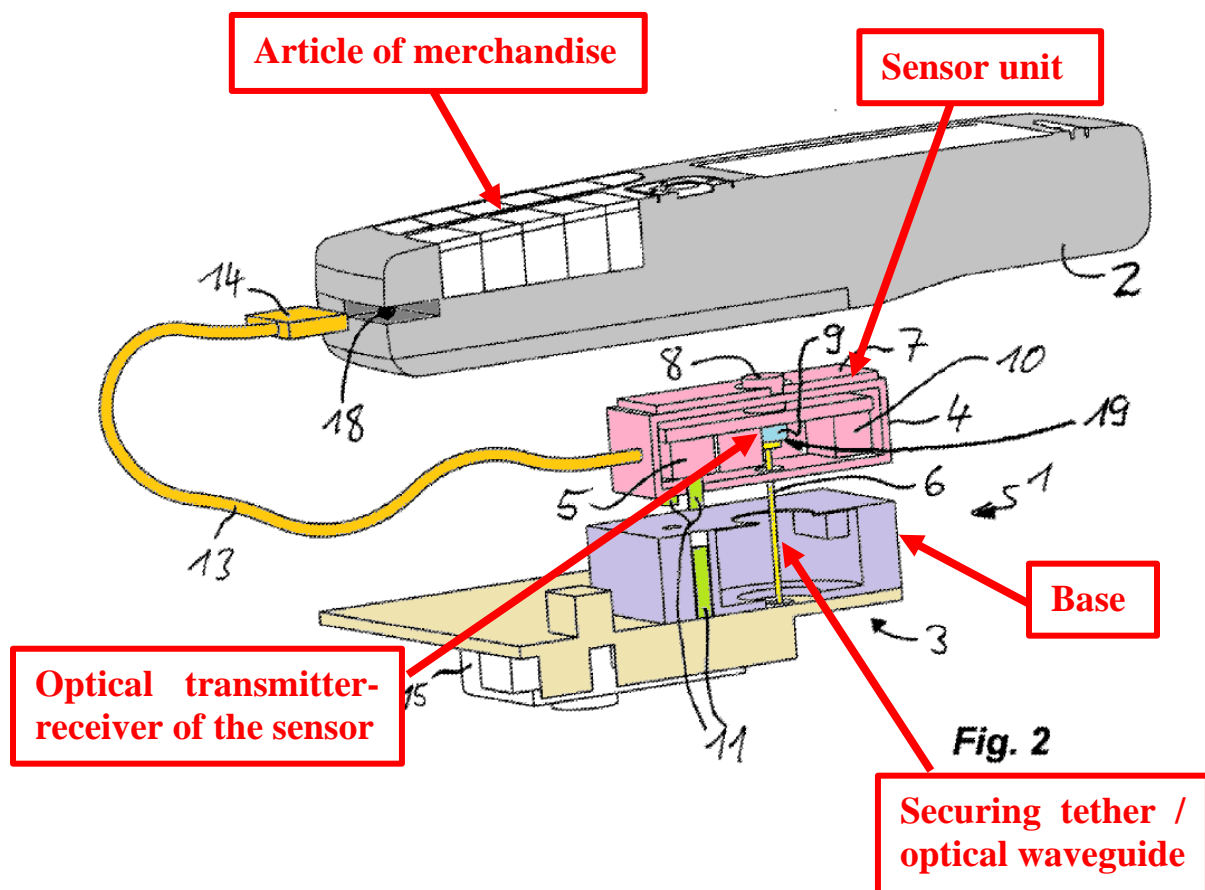
1. Overview of the prior art

a. Brenner

International Pub. No. WO 2011/045058 (“Brenner”) was published on April 21, 2011, and, therefore, Brenner is prior art against the ‘358 Patent under 35 U.S.C.

§ 102(a)(1). Brenner “relates to an apparatus for securing objects, more particularly exhibited goods, against unauthorized taking,” and, therefore, Brenner is analogous with respect to the ‘358 Patent. VPG-1007 at 1.

Brenner discloses an anti-theft device having a sensor that attaches to an item of merchandise, and a base that removably supports the sensor. *Id.* The sensor is connected to the base by a securing tether. *Id.* The security device of Brenner is depicted in Figure 2, which is reproduced and annotated below.



VPG-1007, Figure 2 (annotated)

In an embodiment, the base and the sensor are “designed for bidirectional data transfer.” *Id.* at 7. In this embodiment, the base and the sensor are each equipped with an optical transceiver. *Id.* The securing tether has an optical waveguide enabling transmission of optical signals between the optical transceivers of the sensor and the base. *Id.* Brenner further discloses that the securing tether can be “a spiral cable” or “can be wound under tensile stress” in a winding device. *Id.* at 5-6, 11.

This Petition cites Brenner as the primary reference in Grounds 3, 4, and 5.

b. Marszalek and Wheeler

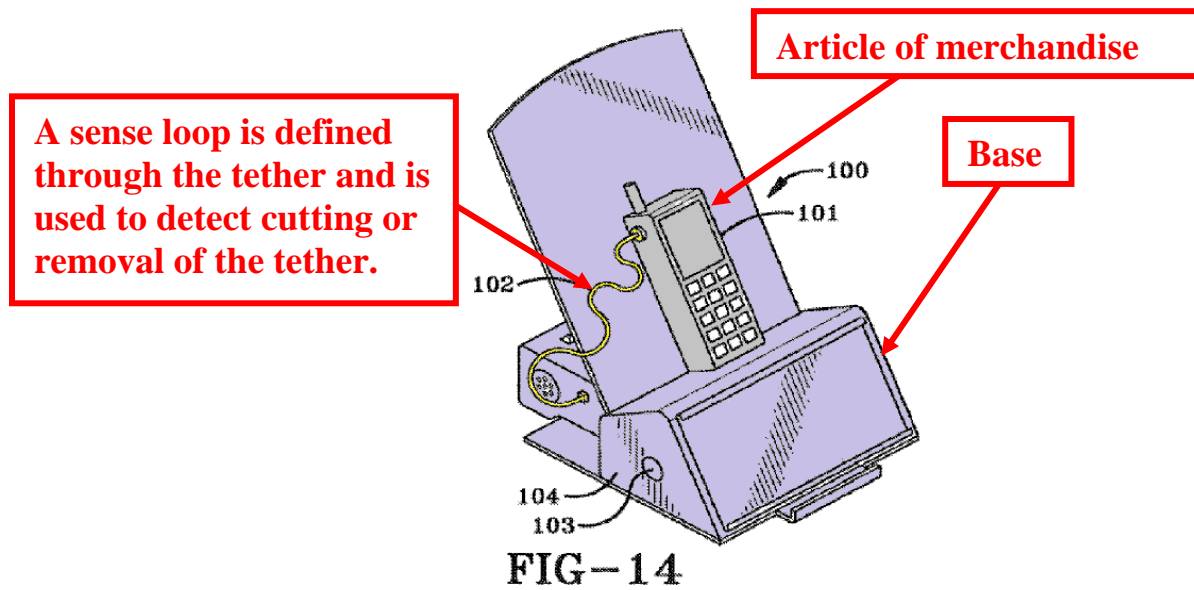
A detailed overview of Marszalek and Wheeler is provided in Parts IX(B)(1)(b)-(c), *supra*.

c. Fawcett

U.S. Patent Pub. No. 2011/0254661 (“Fawcett”) was published on October 20, 2011 and, therefore, is prior art against the ‘358 Patent under 35 U.S.C. § 102(a)(1). Fawcett discloses a “security system and method for protecting an item of merchandise,” and, therefore, is analogous art with respect to the ‘358 Patent. *See* VPG-1009 at Abstract.

Fawcett discloses a security technique that involves defining a “sense loop” through a tether cable for detecting security events associated with the cable, such as cutting of the cable, pulling the cable loose from the base or the sensor, or

removing the cable from its connection jack within the base. *Id.* at [0060]. Fawcett discloses that “sense loops extending between the [base] ... and the item of merchandise may be formed of an electrical conductor or fiber optic conductor located within an outer mechanical attachment cable.” *Id.* at [0023]. An example of a tether cable through which a sense loop is defined is depicted in Figure 14 of Fawcett, which is reproduced and annotated below.



VP-1009, Figure 14 (annotated)

This Petition cites Fawcett to establish that it would have been obvious to define a “sense loop” through the optical waveguide connecting the sensor and the base and through an auxiliary port connecting the auxiliary device to the base. As such, the security system can detect cutting of the tether, removal of the tether from

the sensor or the base, and removal of the peripheral tether connector from the auxiliary port. *Id.* at [0060]; VPG-1012 at ¶ 54.

d. Motivation for combining Brenner, Marszalek, Wheeler, and Fawcett and rationale for reasonable expectation of success

i. Prior to the ‘358 Patent, there was a known market need for a self-contained security device configured to secure two or more articles of merchandise

It is well established that “[m]otivation to combine may be found explicitly or implicitly in market forces; design incentives; the interrelated teachings of multiple patents; any need or problem known in the field of endeavor at the time of invention and addressed by the patent; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *Plantronics*, 724 F.3d at 1354 (Fed. Cir. 2013) (internal citations and quotations omitted). Prior to the ‘358 Patent, there was a known market need for “a system and/or a method for securing *two or more articles* in a self-contained, all-in-one configuration.” VPG-1005 at 2:31-33 (emphasis added). Therefore, a POSA would have been motivated to improve the security system of Brenner to meet this known market need. VPG-1012 at ¶ 56.

ii. Motivation for improving the security system of Brenner with an additional electrical port of Marszalek

A POSA would have been motivated to combine Brenner and Marszalek to attain an improved security system capable of securing multiple articles of merchandise. *Id.* This improvement could have been accomplished by disposing an

electrical port (“jack 82”) taught in Marszalek in the base of the security device of Brenner, thereby enabling the security device to utilize a peripheral tether cable (as taught in Marszalek) to secure a second electronic device. *Id.* This modification would not have required any undue experimentation and would produce an improved security system in which known components would perform their intended functions in an expected manner to meet a known market need. *See* VPG-1005 at 2:29-33; VPG-1012 at ¶ 56.

iii. Motivation for adapting the electrical port of Marszalek for displaying and securing an auxiliary device as taught in Wheeler

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. *See* VPG-1005 at [0049]; *see also* VPG-1012 at ¶ 57. This improvement also would have been straightforward, would not have required any undue experimentation, and would produce an expected result—a security system configured to secure an article of merchandise *and* an auxiliary device. *Id.*; *see also* VPG-1005 at 8:37-39 (disclosing that a peripheral cable can be used to secure “any articles sold and/or displayed in an environment offering any article, product and/or other merchandise as known to one having ordinary skill in the art”) (emphasis added).

- iv. Motivation for implementing the “sense loop” technique of Fawcett to monitor the integrity of the tether cable and to monitor the integrity of connection between the auxiliary port and the peripheral tether

Finally, it would have been obvious to establish a sense loop through the optical waveguide of Brenner in view of Fawcett. *Id.* at ¶ 58. Fawcett teaches that “sense loops extending between the alarm module ... and the item of merchandise may be formed of ... [a] *fiber optic conductor* located within an outer mechanical attachment cable.” VPG-1009 at [0023] (emphasis added). Coincidentally, Brenner discloses a securing tether having an *optical waveguide*, which functions as a conduit for optical signals transmitted between the sensor and the base. VPG-1007 at 7; VPG-1012 at ¶ 58. Thus, a sense loop could be established by programming the sensor to transmit optical security signals to the base via the optical waveguide within the tether, with the base interpreting a failure to receive an expected security signal as a security event. VPG-1012 at ¶ 59. This improvement would have been straightforward, would not have required any additional hardware components, and would have been a matter of routine programming modification of the sensor and the base circuitries. *Id.*

For the reasons set forth above, a POSA would have been motivated to combine Brenner, Marszalek, Wheeler, and Fawcett to achieve an improved security system that would address a known market need for a security system configured to

secure both an article of merchandise and its auxiliary device and would have a reasonable expectation that the achieved security system would be functional for its intended purpose. *Id.* at ¶ 60.

G. Analysis: Claims 1-3, 16, and 18 are obvious over the combination of Brenner, Marszalek, Wheeler, and Fawcett

1. Claim 1

- a. “A merchandise security system for displaying and protecting an article of merchandise and an auxiliary device of the article of merchandise from theft”

Brenner discloses “an apparatus for securing objects, more particularly exhibited goods, against unauthorized taking.” VPG-1007 at 1. As established in Part IX(F)(1)(d), *supra*, it would have been obvious to combine Brenner with Marszalek and Wheeler to achieve an improved merchandise security system configured to secure an article of merchandise and a complementary auxiliary device. VPG-1012 at ¶ 97. Therefore, the combination of Brenner, Marszalek, and Wheeler teaches the preamble of claim 1. *Id.*

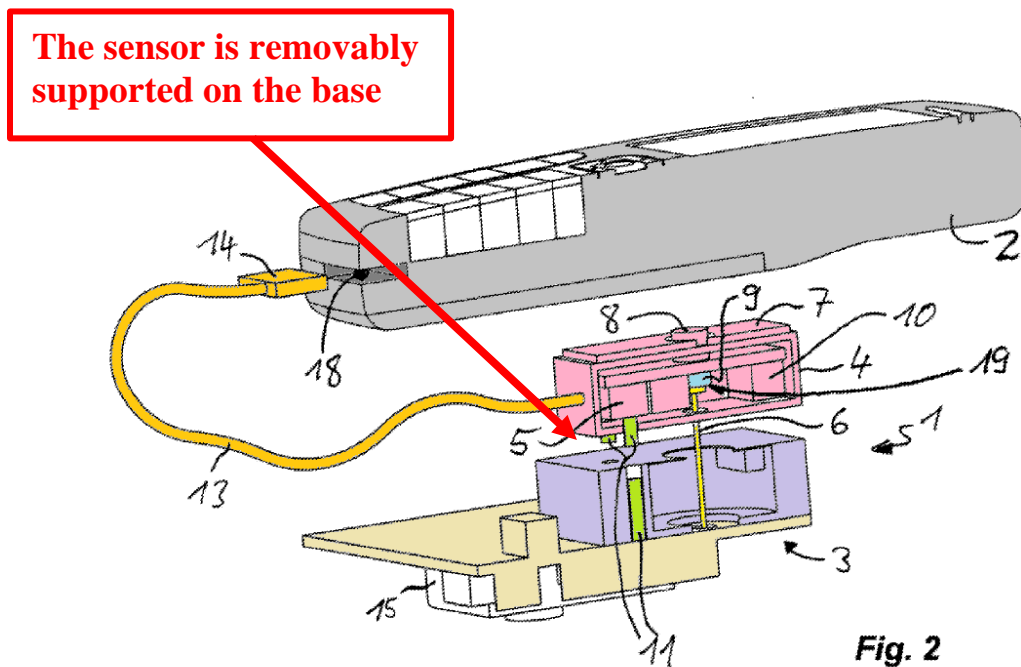
- b. “a sensor that is secured to the article of merchandise and that detects removal of the article of merchandise from the sensor”

Brenner discloses that “[t]he sensor unit for securing the object is connected to the object.” VPG-1007 at 2. Brenner teaches that the sensor has a push-button switch that is actuated when the sensor is attached to the article of merchandise, such that “a theft attempt by separating the object from the sensor unit can be detected”

by the sensor. *Id.* Therefore, Brenner teaches “a sensor that is secured to the article of merchandise and that detects removal of the article of merchandise from the sensor.” VPG-1012 at ¶ 98.

c. “a base that removably supports the sensor and the article of merchandise thereon”

Brenner teaches a base for removably supporting the sensor. *See* VPG-1007 at Figure 2 (depicting the sensor lifted from the base); *see also id.* at 11 (disclosing that “in order to demonstrate or try out the secured object 2, the secured object 2 can be simply grabbed and the securing tether 6 can be pulled out of the winding device 15 against the tensile force”). Figure 2, which is reproduced and annotated below, depicts the sensor in a lifted position relative to the base.

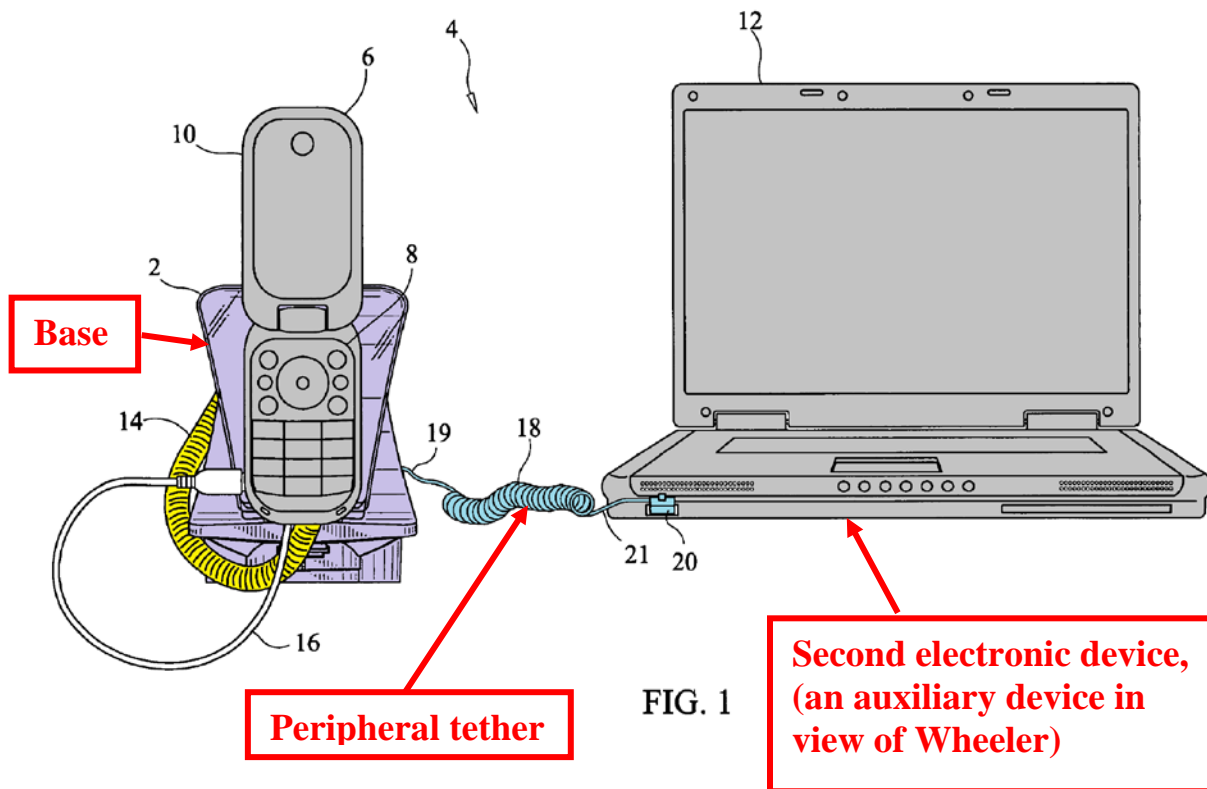


VPG-1007, Figure 2 (annotated)

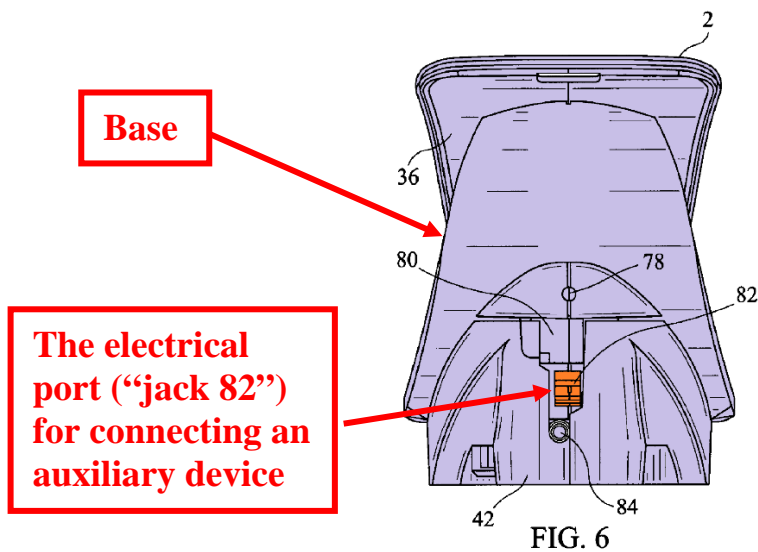
The disclosure of Brenner quoted above establishes that Brenner teaches the limitation “a base that removably supports the sensor and the article of merchandise thereon.” VPG-1012 at ¶ 99.

d. “wherein the base further comprises an auxiliary port that operably connects to the auxiliary device”

As established in Part IX(F)(1)(d)(iv), *supra*, a POSA would have been motivated to combine Brenner, Marszalek, and Wheeler to achieve an improved security system configured to secure an article of merchandise *and* a complementary auxiliary device. *See* VPG-1012 at ¶ 100. Marszalek (in view of Wheeler) teaches that an auxiliary device can be secured using a peripheral tether cable. *See* VPG-1005 at 3:27-30; VPG-1012 at ¶ 100. Marszalek further teaches that the base has an electrical port (“jack 82”) configured to receive a connector of the peripheral tether. VPG-1005 at 11:32-35; VPG-1012 at ¶ 100. These features of Marszalek are depicted in Figures 1 and 6, which are reproduced and annotated below.



VPG-1005, Figure 1 (annotated)



VPG-1005, Figure 6 (annotated)

As explained in Part IX(F)(1)(d), *supra*, it would have been obvious to integrate the electrical port taught in Marszalek into the base of Brenner, yielding a base having an electrical port configured to receive a peripheral cable for securing an auxiliary device. VPG-1012 at ¶ 101. As established in Part VIII(2), *supra*, an electrical port for connecting an auxiliary device is an “*auxiliary port*.” *Id.* Therefore, the combination of Brenner, Marszalek, and Wheeler teaches an auxiliary port disposed within the base and configured to receive an input connector of the peripheral tether cable. *Id.*

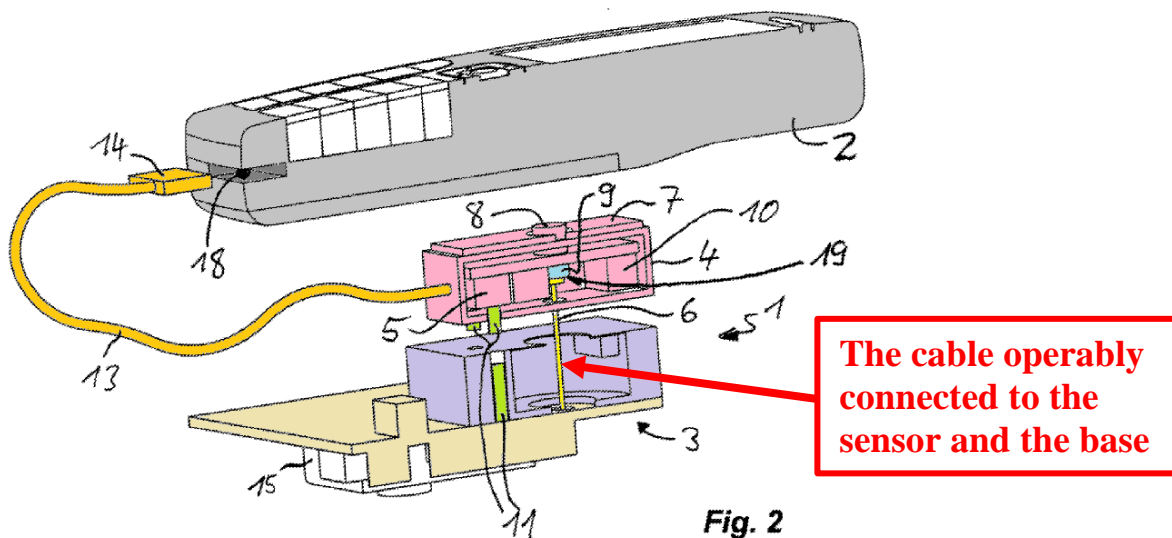
Next, with respect to the limitation “operably connect,” Marszalek discloses “[t]he peripheral tether cable 18, the peripheral sensor 20 and/or the network plug ... capable of ... *electronically securing* the article 12.” VPG-1005 at 11:39-43 (emphasis added). Marszalek, in view of Wheeler, teaches that one end of the peripheral tether is connected to the base while the opposite end is connected to the peripheral sensor attached to an auxiliary device. *Id.* at 11:32-42; VPG-1012 at ¶ 102. Marszalek also teaches that the security system is configured to monitor the integrity of each of these connections to detect “if the tether is cut, removed and/or tampered with.” VPG-1005 at 3:34-40; *see also* VPG-1012 at ¶ 102. As established in Part VIII(3), *supra*, a connection whose integrity can be monitored by the security system is an “*operable connection*.” VPG-1012 at ¶ 102. Therefore, Marszalek (in

view of Wheeler) teaches that the peripheral tether cable is *operably connected* to the auxiliary device. *Id.*

Thus, for the reasons set forth above, the combination of Brenner, Marszalek, and Wheeler teaches the limitation “wherein the base further comprises an auxiliary port that operably connects to the auxiliary device.” *Id.* at ¶ 103.

e. “a cable operably connected to the sensor and the base”

Brenner discloses the security system having “a base unit and a sensor unit, which are connected to each other by means of a *securing tether*.” VPG-1007 at 1 (emphasis added). Brenner further discloses that “the securing tether has an optical waveguide, that the sensor unit has an optical transmitter and the base unit has an optical receiver.” *Id.* at 2. The securing tether is depicted in Figure 2, which is reproduced and annotated below.



VPG-1007, Figure 2 (annotated)

As established in Part IX(F)(1)(d), *supra*, it would have been obvious to define a sense loop through the optical waveguide within the securing tether, as taught in Fawcett. *See* VPG-1009 at [0023]. The sense loop could be established by programming the sensor to transmit optical security signals to the base via the optical waveguide within the securing tether, with the base interpreting a failure to receive an expected security signal as a security event. VPG-1012 at ¶ 105. As such, the sense loop would have enabled the security system to monitor the integrity of the connection of the securing tether to the base and the sensor. *See* VPG-1009 at [0060]; VPG-1012 at ¶ 105. As established in Part VIII(3), *supra*, a connection that is being monitored by the security system is an *operable* connection. Therefore, Brenner in view of Fawcett teaches the limitation “a cable operably connected to the sensor and the base.” *Id.*

f. “wherein the base transfers power to the auxiliary port for powering the auxiliary device”

Marszalek in view of Wheeler discloses that the base is configured to transfer power to a peripheral sensor attached to an auxiliary device. VPG-1005 at 11:13-20; VPG-1012 at ¶ 106. In turn, Brenner teaches that the power can be transferred from a sensor to an electronic device to which the sensor is attached using an adapter cable (“connecting line 13”). VPG-1007 at 10. Thus, it would have been 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. VPG-1012 at ¶ 106.

A POSA would have been motivated to enable the base to charge the auxiliary device because it was known that “[m]any [devices] require power connections and/or data connections to allow an operational interaction between the consumer and the [devices].” VPG-1005 at 1:51-54; VPG-1012 at ¶ 107. This improvement would not have required any undue experimentation and would predictably and expectedly yield an improved security system in which the base is configured to transfer power to both the article of merchandise and an auxiliary device, enabling the prospective customers to interact with both devices. *Id.*

Therefore, the combination of Brenner, Marszalek, and Wheeler teaches the limitation “wherein the base is configured to transfer power to the article of merchandise and the auxiliary device.” *Id.* at ¶ 108.

- g. “wherein a security signal is transmitted through the auxiliary port for that is used to detect removal the cable being cut, shorted, or disconnected and removal of the auxiliary device from the base.”

Fawcett teaches that a sense loop “may be formed of an *electrical conductor* ... located within an outer mechanical cable.” VPG-1009 at [0023] (emphasis added). Because the peripheral tether securing the auxiliary device has an electrical conductor, it would have been obvious to implement Fawcett’s “sense loop”

technique to secure the auxiliary device. VPG-1012 at ¶ 109. For this reason, a POSA would have been motivated to configure the security system to transmit a security signal through the auxiliary port to detect unauthorized removal of the auxiliary device from the base. *Id.*

These improvements would have been straightforward, would not have required any undue experimentation, and would have produced a predictable and expected result—a security system configured to secure both the article of merchandise and the auxiliary device against unauthorized removal. *Id.* at ¶110. For the reasons set forth above, the combination of the cited prior art teaches the limitation “wherein a security signal is transmitted through the auxiliary port for that is used to detect removal the cable being cut, shorted, or disconnected and removal of the auxiliary device from the base.” *Id.*

h. CONCLUSION: Claim 1 is obvious over the combination of Brenner, Marszalek, Wheeler, and Fawcett

The combination of Brenner, Marszalek, Wheeler, and Fawcett teaches every limitation of claim 1 of the ‘358 Patent. VPG-1012 at ¶ 111. Accordingly, claim 1 of the ‘358 Patent claims nothing more than an obvious combination of well-known components and technologies performing their intended functions in an expected and predictable manner. *Id.* The governing law is unambiguous: “when a patent ‘simply arranges old elements with each performing the same function it had been

known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *KSR Int’l Co.*, 550 U.S. at 417 (citation omitted). Therefore, claim 1 of the ‘358 Patent is obvious and should be invalidated.

2. Claim 2

- a. “The merchandise security system of claim 1, wherein the auxiliary port is configured to receive an input connector operably connected to the auxiliary device.”

As established in Part IX(G)(1)(d), *supra*, the combination of the cited art teaches that one end of the peripheral tether cable is *operably connected* to the auxiliary device, while the other end has a network plug configured to be received within the auxiliary port (“jack 82”). *See* VPG-1005 at 11:32-35 (“The first end 19 of the peripheral tether cable 18 may have a *network plug*, such as, for example, an RJ-45 plug that *may be received by a jack 82*.”) (emphasis added). Therefore, the combination of the cited prior art teaches the limitation “wherein the auxiliary port is configured to receive an input connector operably connected to the auxiliary device.” VPG-1012 at ¶ 112. Accordingly, claim 2 is obvious.

3. Claim 3

- a. “The merchandise security system of claim 2, wherein the security signal is configured to be transmitted through the cable and the auxiliary port for detecting removal of the input connector from the auxiliary port.”

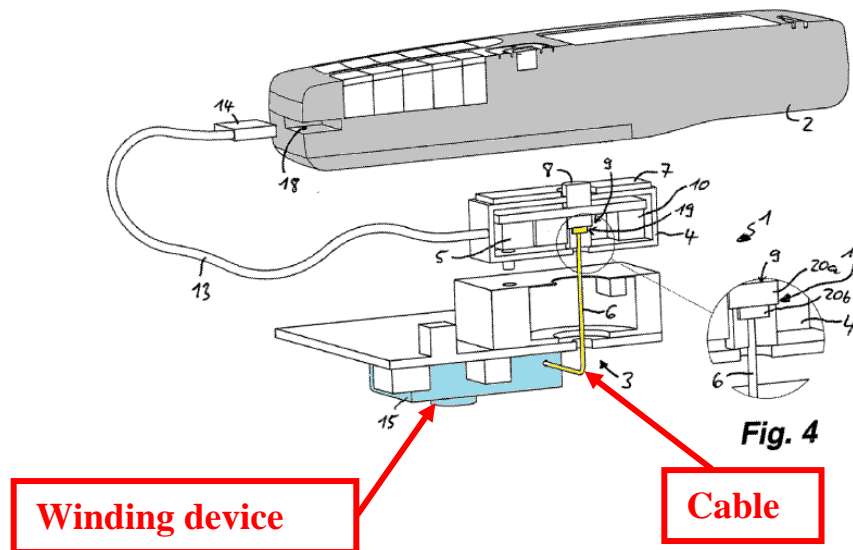
As established in Part IX(G)(1)(f), *supra*, the combination of Brenner, Marszalek, Wheeler, and Fawcett teaches that “a security signal transmitted through the cable and the auxiliary port that is used to detect removal of the auxiliary device from the base.” As established above, Marszalek further teaches that the peripheral tether has an input connector (“a network plug”) configured to be received within the auxiliary port. VPG-1005 at 11:32-35; *see also* Part IX(C)(2). Therefore, the security signal transmitted through the cable and the auxiliary port would enable detection of removal of the input connector from the auxiliary port. VPG-1012 at ¶ 113. Thus, the combination of Brenner, Marszalek, Wheeler, and Fawcett teaches the limitation “wherein the security signal is configured to be transmitted through the cable and the auxiliary port for detecting removal of the input connector from the auxiliary port.” *Id.* Thus, claim 3 is obvious.

4. Claim 16

- a. “The merchandise security system of claim 1, further comprising a recoiler comprising a rotatable member, wherein the cable is configured to be unwound from and wound on the rotatable member as the cable is extended and retracted.”

Brenner discloses “[a] winding device ... by means of which the securing tether can be wound under tensile stress.” VPG-1007 at 11. Brenner explains that the when an article of merchandise is lifted from the base, “the securing tether 6 can

be pulled out of the winding device 15 against the tensile force.” *Id.* The winding device is depicted in Figure 4, which is reproduced and annotated below.



VPG-1007, Figure 4 (annotated)

A POSA would understand that the winding device of Brenner includes a reel that is configured to rotate inside the winding device to unwind the tether when the sensor is lifted from the base and, then, to rotate in the opposite direction to retract the tether under the tensile stress when the sensor is placed back on the base. VPG-1012 at ¶ 115; *see also* VPG-1006 at [0020] (disclosing that “[i]t is common practice for the products to be tethered via a *reeled* power cord”) (emphasis added). Accordingly, the combined cited prior art teaches the limitation “a recoiler comprising a rotatable member, wherein the cable is configured to be unwound

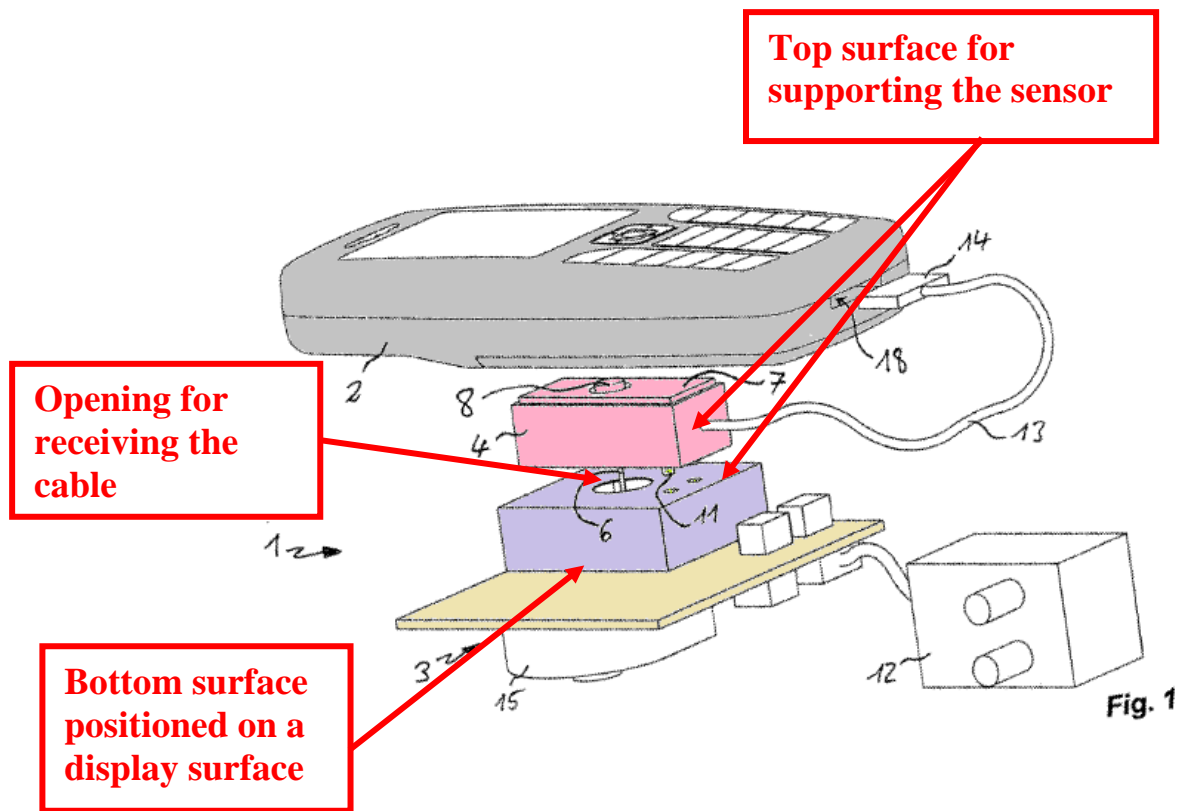
from and wound on the rotatable member as the cable is extended and retracted.”

VPG-1012 at ¶ 115. Therefore, claim 16 is obvious.

5. Claim 18

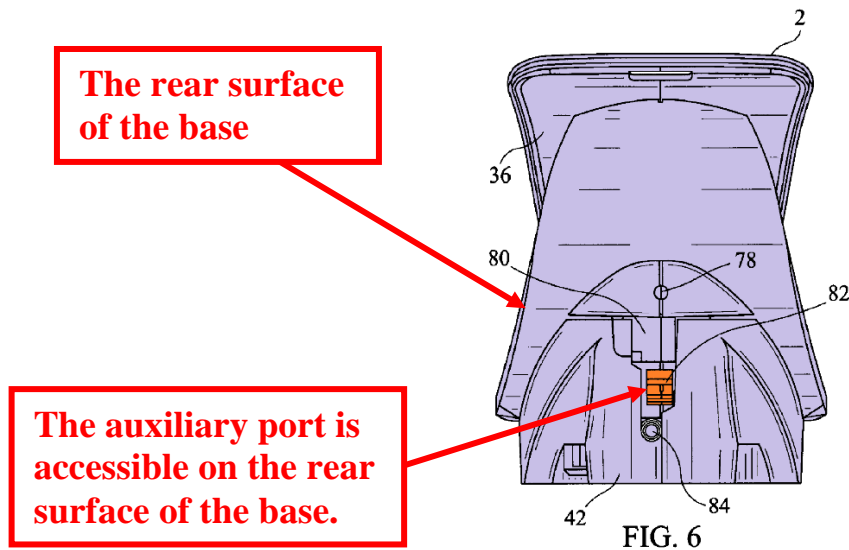
- a. “The merchandise security system of claim 1, further comprising a recoiler comprising a rotatable member, wherein the base comprises a top surface for supporting the sensor, a bottom surface for being positioned on a display surface, a side surface, and a rear surface, wherein the auxiliary port is disposed on the rear surface, and wherein an opening is defined in the top surface for receiving the cable.”

Figure 1 of Brenner, which is reproduced and annotated below, depicts that the base has a top surface configured to support the sensor and having an opening for receiving the cable, a bottom surface positioned on a display surface, a side surface, and a rear surface. *Id.* at ¶ 116.



VPG-1007, Figure 1 (annotated)

Next, as established in Part IX(C)(6), *supra*, Marszalek in view of Wheeler teaches that the auxiliary port is accessible on a rear surface of the base. VPG-1005 at Figure 6; VPG-1012 at ¶ 117. Figure 6 of Marszalek, which is reproduced and annotated below, provides a rear plan view of the base depicting that the auxiliary port (“jack 82”) is accessible on the rear surface of the base. *See* VPG-1005 at 7:27-29, Figure 6. A POSA would have been motivated to follow the teachings of Marszalek by placing the auxiliary port on the rear surface of the base because a thief would have a difficult time reaching around the base to disconnect the peripheral tether without raising suspicion. VPG-1012 at ¶ 117.



VPG-1005, Figure 6 (annotated)

The analysis provided above establishes that the combination of the cited prior art teaches the limitation “wherein the base comprises a top surface for supporting the sensor, a bottom surface for being positioned on a display surface, a side surface, and a rear surface, wherein the auxiliary port is disposed on the rear surface, and wherein an opening is defined in the top surface for receiving the cable.” VPG-1012 at ¶ 118. Accordingly, claim 19 is obvious.

H. GROUND 4

1. Overview of the Prior Art

a. Brenner, Marszalek, Wheeler, and Fawcett

Overview of Brenner, Marszalek, Wheeler, and Fawcett and the motivation for their combination are provided in Parts IX(F)(1), *supra*.

b. Vogt

Overview of Vogt is provided in Part IX(D)(1)(b), *supra*.

c. The ‘730 Publication

U.S. Patent Pub. No. 2014/0335730 (“the ‘730 Publication”) published on November 13, 2014 and, therefore, is prior art against the ‘358 Patent under 34 U.S.C. § 102(a)(1). The ‘730 Publication relates to “connectors for securing electronic devices from theft” and, therefore is analogous art with respect to the ‘358 Patent.

The ‘730 Publication discloses a security cable, one end of which is “operably engaged with an alarm device,” while the opposite end has a connector coupled to an article of merchandise. VPG-1010 at [0020]. The cable includes a plurality of electrical conductors configured to transmit security signals between the connector and the alarm device. *Id.* Most importantly, the ‘730 Publication discloses that the connector may include an integrated optical sensor for monitoring its attachment to the article of merchandise. *Id.* at [0030]. The ‘730 Publication teaches that “[t]he sensor may be engaged, integrated, molded, or otherwise coupled to the connector.” *Id.* The security cable is depicted in Figure 1, which is reproduced and annotated below.

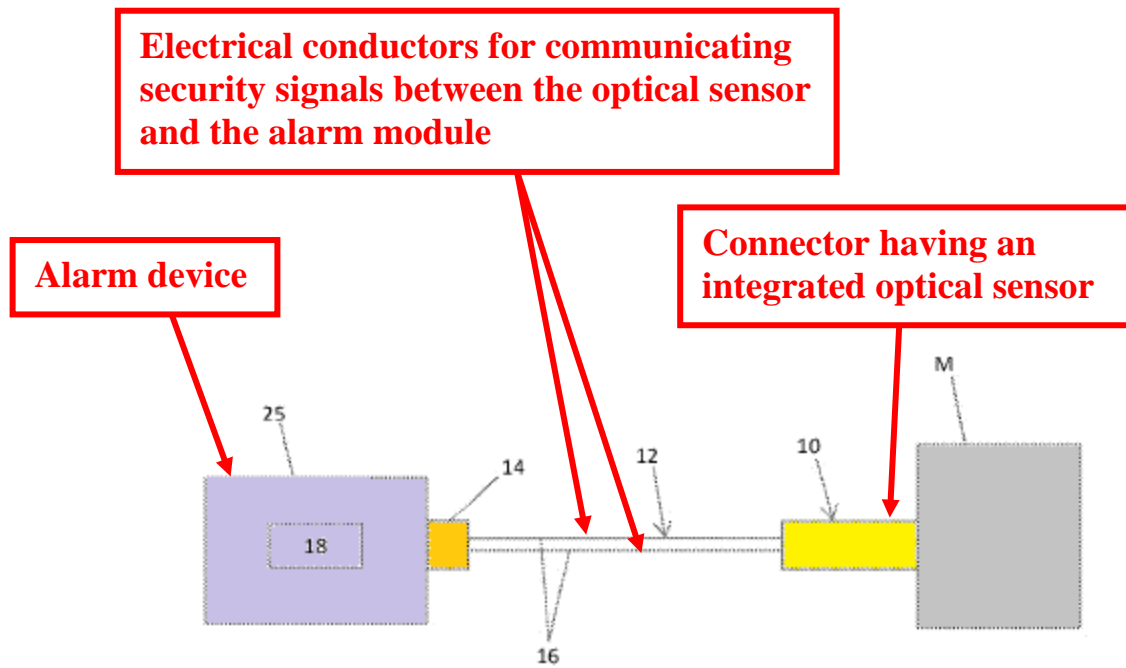


FIGURE 1

VPG-1010, Figure 1 (annotated)

This Petition cites the ‘730 Publication to establish that the ‘358 Patent did not invent a security cable having an optical sensor, and that it would have been obvious to improve the security system of Brenner by relocating the optical transceiver of the base into a connector of the tether cable.

d. Motivation for combining Brenner and the ‘730 Publication and rationale for expected success of such combination

i. Motivation

A POSA would have recognized that the security system of Brenner *relies on an optical waveguide* within the securing tether to transmit optical signals between

the optical transceivers of the sensor unit and the base unit. VPG-1007 at 7. 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. *Id.* at 5-6, 11. It 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.” VPG-1014 at 196, 576, and 536; VPG-1012 at ¶ 63. These types of optical signal losses are illustrated in Figures L-8 and L-9 of the Standard Communications Dictionary and are reproduced below:

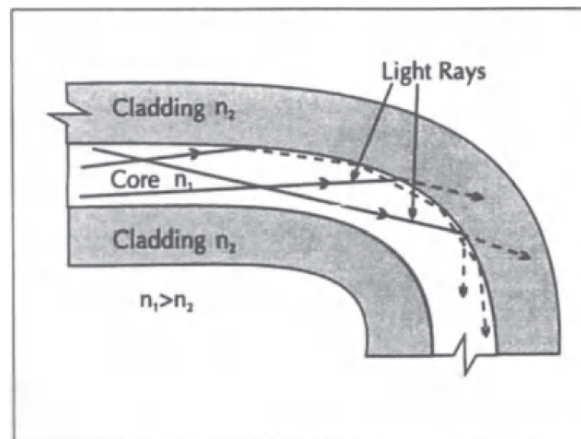


Figure L-8. A curvature loss that occurs in light rays propagating in an optical fiber, so that at the bend (a) many of the rays strike the core-cladding interface surface at angles less than the critical angle and (b) the surface waves, i.e., evanescent waves and leaky waves, at the outside curve of the bend cannot travel faster than the speed of light and therefore become uncoupled with modes inside the core and radiate away.

VPG-1014 at 536, Figure L-8 (emphasis in original)

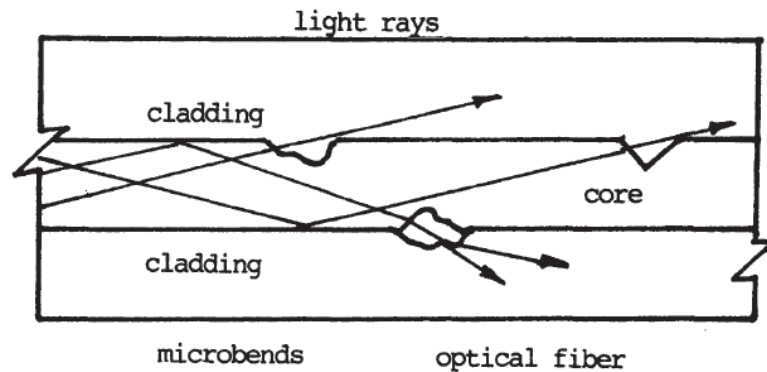


Figure L-9. A microbend loss that occurs in light rays propagating in an optical fiber. The loss occurs because, at the microbends, some rays encounter a core-cladding interface surface such that the incidence angle is less than the critical angle at that microscopic point of incidence.

VPG-1014 at 536, Figure L-9 (emphasis in original)

Thus, a POSA would have recognized that the security device of Brenner 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. VPG-1012 at ¶ 64. This motivation would have led to the ‘730 Publication. *Id.*

The ‘730 Publication discloses that an optical sensor can be integrated into a connector of the security cable. VPG-1010 at [0020]. The ‘730 Publication further discloses that the security cable has electrical conductors enabling the sensor to communicate security signals to the alarming device (*i.e.*, the “base”). VPG-1010 at [0020]. In view of the ‘730 Publication, a POSA would have been motivated to

relocate the first optical transceiver from the base into the connector of the securing tether, thereby enabling the first optical transceiver to communicate directly with the optical transceiver of the sensor, without requiring an optical waveguide. VPG-1012 at ¶ 64.

By relocating the optical transceiver from the base unit into the connector of the tether, the optical waveguide would have been replaced with standard electrical conductors (as disclosed in the ‘730 Publication), which do not suffer signal loss when bent or wound. *Id.* The electrical conductors would be used to power the optical transceiver of the cable, as well as to communicate signals between the sensor and the base. *Id.* Thus, a need for an optical waveguide would be obviated, thereby eliminating the issue of potential signal loss between the sensor and the base. *Id.* For these reasons, a POSA would have been motivated to improve the security device of Brenner in view of the ‘730 Publication.

ii. Reasonable expectation of success

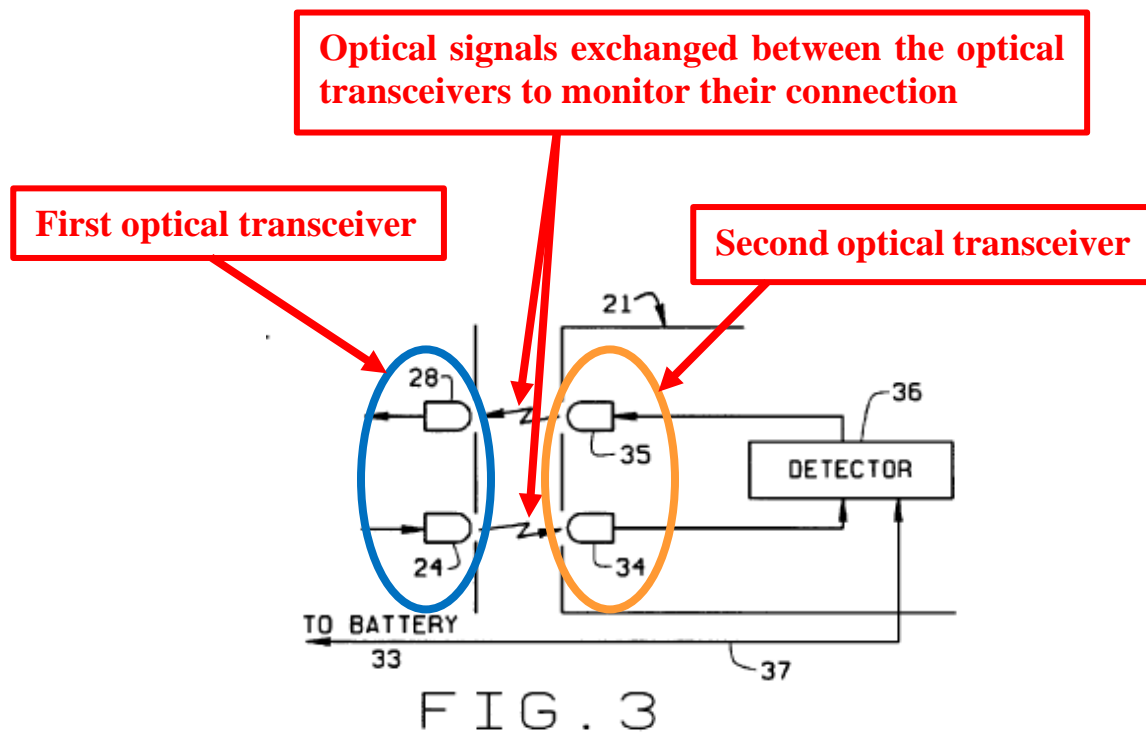
The improvement to the security device of Brenner described above would improve its reliability, while retaining the security features and the principles of operation taught in Brenner, including a sensor configured to emit optical signals responsive to detecting a security event, and the base configured to trigger an alarm responsive to receiving a signal indicating that a security event has been detected. *Id.* at ¶ 65. This modification would have been straightforward and would produce

an expected result—a security system in which the optical transceivers of the base and the sensor would be configured to communicate signals directly with one another, rather than across the optical waveguide within the securing tether. *Id.*

e. Motivation for combining Brenner and the ‘730 Publication with Vogt and rationale for expected success of such combination

As established in Part IX(H)(1)(d), *supra*, it would have been obvious to improve Brenner by relocating the first optical transceiver from the base into the connector of the tether cable. VPG-1012 at ¶¶ 64-65. In this improved security device, the optical transceiver of the cable would engage in bidirectional communication with the optical transceiver of the sensor. *Id.* As explained in Part IX(D)(1)(b), *supra*,

Vogt teaches a security technique that uses bidirectional optical communication between two optical transceivers of two units (units 20 and 21) to monitor the integrity of their connection, such that an alarm is triggered if one of the units is removed. VPG-1007 at Abstract. This technique is depicted in Figure 3 of Vogt:



VPG-1008, Figure 3 (annotated)

If the optical transceivers become separated or one of the optical transceivers becomes depowered (such as if the cable supplying power to the unit were cut), the optical communication between them will fail, thus triggering an alarm condition. *Id.*; VPG-1012 at ¶ 48-49. Vogt specifically teaches that this security technique can be used to monitor a cable connection, as depicted in Figure 9B:

Optical transceivers of units 20 and 21 communicate optical signals to one another. If the units are disconnected, optical communication between units 20 and 21 fails, thus triggering an alarm.

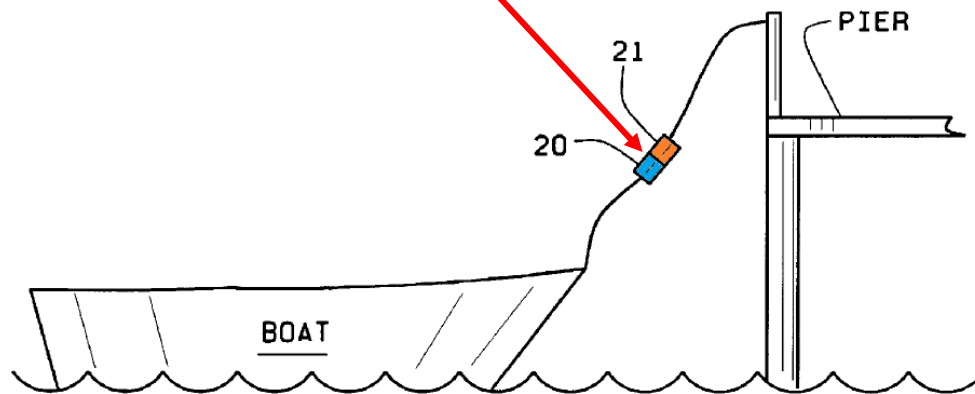


FIG. 9B

VPG-1008; Figure 9B (annotated)

It would have been obvious to implement the security technique of Vogt to monitor the integrity of the connection between the securing tether and the sensor in Brenner's security system. VPG-1012 at ¶ 119. Because Brenner in view of the '730 Publication teaches that the cable connector and the sensor each has an optical transceiver, adapting the transceivers to communicate with one another in a manner taught in Vogt would have been straightforward and would produce an expected and predictable result—an improved security system in which the optical transceiver of the cable and the optical transceiver of the sensor communicate optical signals to

one another to detect a security event, such as cutting or removal of the tether cable.

Id.

I. Analysis: claims 19, 20, 23, and 28 are obvious over the combination of Brenner, Marszalek, Wheeler, Fawcett, the ‘730 Publication, and Vogt

1. Claim 19

- a. “The merchandise security system of claim 1, wherein the cable and the sensor communicate optical signals with one another for detecting a security event associated with the sensor, the cable, or the item of merchandise.”

As established in Part IX(H)(1)(d), *supra*, it would have been obvious to improve the security device of Brenner in view of the ‘730 Publication, such that the optical transceiver of the base is relocated into the tether connector. *Id.* Furthermore, as established in Part IX(H)(1)(e), *supra*, it would have been obvious, in view of Vogt, to adapt the optical transceiver of the cable and the optical transceiver of the base to communicate optical signals to one another to detect a security event, such as removal of the cable. *Id.* Therefore, Brenner in view of the ‘730 Publication and Vogt renders claim 19 obvious.

2. Claim 20

- a. “The merchandise security system of claim 19, wherein an end of the cable comprises an optical transceiver for communicating optical signals with the sensor.”

As established in Part IX(H)(1)(c), *supra*, it would have been obvious to improve the security system of Brenner by relocating the optical transceiver from

the base into the connector of the securing tether, as taught by the ‘730 Publication. VPG-1012 at ¶ 120. The optical transceiver of the cable and the optical transceiver of the sensor would be configured to engage in bidirectional optical communication, as taught in Brenner. VPG-1007 at 7; *see also* VPG-1012 at ¶ 120. Therefore, Brenner in view of the ‘730 Publication teaches the limitation “wherein an end of the cable comprises an optical transceiver for communicating optical signals with the sensor.” *Id.* Thus, claim 20 is obvious.

3. Claim 23

- a. “The merchandise security system of claim 20, wherein the sensor comprises an optical transceiver for communicating optical signals with the optical transceiver of the cable.”

As established in Part IX(I)(2), *supra*, Brenner in view of the ‘730 Publication teaches that the optical transceiver of the sensor is configured to engage in bidirectional optical communication with the optical transceiver of the cable. VPG-1012 at ¶ 121. Therefore, claim 23 is obvious.

4. Claim 28

- a. “The merchandise security system of claim 23, wherein the optical transceiver of the cable is configured to communicate with the optical transceiver of the sensor for detecting disconnection of the cable from the sensor.”

As established in Part IX(H)(1)(e), *supra*, the combination of Brenner, the ‘730 Publication, and Vogt teaches a security system in which one optical

transceiver is integrated into the tether cable and another optical transceiver is housed within the sensor, such that the two optical transceivers communicate with one another to determine whether the cable has been disconnected from the sensor. *See* VPG-1008 at Abstract; *see also* VPG-1012 at ¶ 122. Therefore, the combination of the cited prior art teaches the limitation “wherein the optical transceiver of the cable is configured to communicate with the optical transceiver of the sensor for detecting disconnection of the cable from the sensor.” Thus, claim 28 is obvious.

X. CONCLUSION

For the reasons set forth above, Petitioner requests institution of an *inter partes* review with respect to claims 1-3, 16-20, 23, 28, and 29 of the ‘358 Patent.

Respectfully submitted,
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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that, in accordance with 37 C.F.R. § 42.24(d), this Petition includes a total of 14,879 words. Per 37 C.F.R. § 42.24(a), the total number of words excluding a table of contents, a table of authorities, a certificate of service, certificate of word count, and list of exhibits is 13,978.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, in accordance with 37 C.F.R. § 42.6(e), the above Petition and a copy of the incorporated exhibits were served in their entirety on October 18, 2019 upon the following via FedEx®:

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