UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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ONE WORLD TECHNOLOGIES, INC.
d/b/a TECHTRONIC INDUSTRIES POWER EQUIPMENT,
Petitioner,

v.

THE CHAMBERLAIN GROUP, INC.,
Patent Owner.
_____

Case IPR2017-00073
Patent 7,196,611 B2
_____

Before JONI Y. CHANG, JUSTIN T. ARBES, and JOHN F. HORVATH,
Administrative Patent Judges.

ARBES, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. BACKGROUND

Petitioner One World Technologies, Inc. d/b/a Techtronic Industries Power Equipment filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1–8 and 10–14 of U.S. Patent No. 7,196,611 B2 (Ex. 1001, "the '611 patent") pursuant to 35 U.S.C. § 311(a). On April 25, 2017, we instituted an *inter partes* review of claims 1–8 and 10–14 on two grounds of unpatentability. Paper 8 ("Dec. on Inst."). Patent Owner The Chamberlain Group, Inc. subsequently filed a Patent Owner Response (Paper 13, "PO Resp.") and Petitioner filed a Reply (Paper 17, "Reply"). Pursuant to our authorization (Paper 19), Patent Owner filed a list of allegedly improper arguments in Petitioner's Reply (Paper 20) and Petitioner filed a response (Paper 25). Petitioner also filed a Motion to Exclude (Paper 23, "Mot.") certain evidence submitted by Patent Owner, to which Patent Owner filed an Opposition (Paper 26, "Opp.") and Petitioner filed a Reply (Paper 27). An oral hearing was held on January 18, 2018, and a transcript of the hearing is included in the record (Paper 31, "Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–8 and 10–13 are unpatentable, but Petitioner has not shown by a preponderance of the evidence that claim 14 is unpatentable.

A. The '611 Patent[1]

The '611 patent pertains to "human interface methods" for "barrier movement operators." Ex. 1001, col. 1, ll. 6–8. Barrier movement operators (e.g., gate operators and garage door operators), including "a motor for moving a barrier between open and closed positions and a controller for selectively energizing the motor to move the barrier," were known in the art. *Id.* at col. 1, ll. 9–14. According to the '611 patent, as new features were added to such systems, installation and maintenance became more complicated, resulting in a need for "improved human interaction with barrier movement operators to simplify their installation and maintenance." *Id.* at col. 1, ll. 20–28.

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[1] Petitioner also challenges claims 18–25 of the '611 patent in Case IPR2017-00214. Case IPR2017-00214 involves different claims, different asserted prior art, and different patentability issues and arguments. Further, the parties never requested consolidation of the two proceedings. Accordingly, we did not consolidate them for purposes of trial under 35 U.S.C. § 315(d).

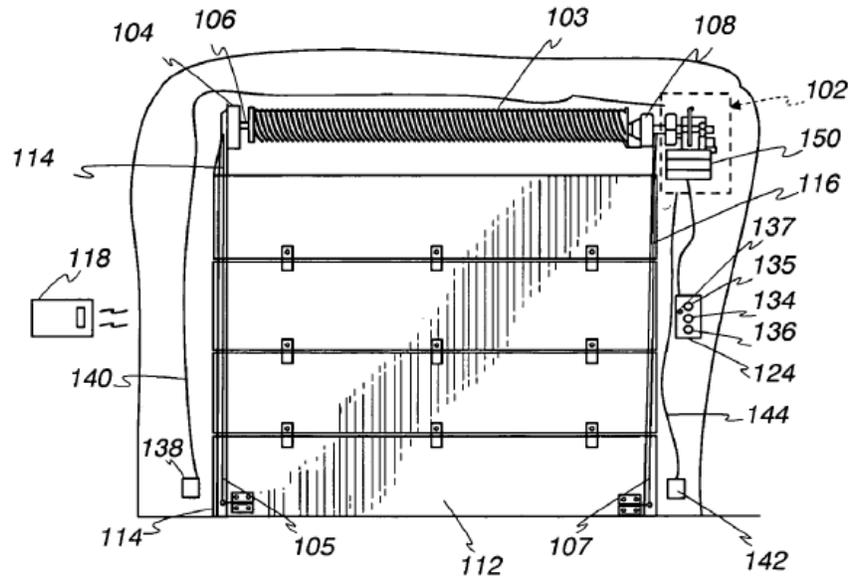Figure 1 of the '611 patent is reproduced below.

Fig. 1

Figure 1 depicts a barrier movement operator comprising panel door 112, head end 102, motor 150, controller 208 (not shown), RF transmitter 118, and wall control 124 with light-emitting diode (LED) 137, close push button 134, open push button 135, and stop push button 136. *Id.* at col. 1, l. 47–col. 2, l. 22. When the user presses one of the buttons, wall control unit 124 signals controller 208, which energizes motor 150 to move or stop movement of panel door 112. *Id.* at col. 2, ll. 18–29, Fig. 2. Controller 208 also is connected to input/output device 147 (not shown), typically located in head end 102, which is "useful to installers and maintainers of the barrier movement operator." *Id.* at col. 2, ll. 41–45, Fig. 2.

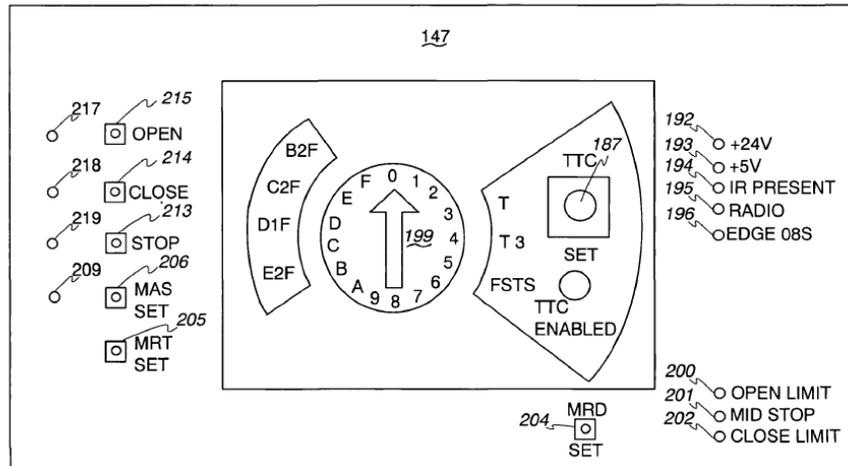Figure 3 of the '611 patent is reproduced below.

Fig. 3

Figure 3 depicts input/output device 147 including switches (open switch 215, close switch 214, and stop switch 213) with corresponding LEDs 217, 218, and 219 to "allow maintenance personnel to control the barrier from the head end 102"; "indicator LEDs" to "advise a user of the status of particular controller functions" (24V status 192, 5V status 193, IR present 194, radio present 195, and edge obstruction 196); and LEDs that indicate the "status of the barrier" (LED 200 for the barrier's open limit, LED 201 for the mid-travel limit, and LED 202 for the closed limit).[2] *Id.* at col. 2, ll. 41–60, col. 3, ll. 7–12. Controller 208 monitors the conditions represented by the "status" LEDs and causes the LEDs to be activated as necessary. *Id.* at col. 2, ll. 55–57. Controller 208 also detects errors and stores representations of the errors in memory. *Id.* at col. 3, ll. 23–27.

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[2] The barrier status LEDs appear to be numbered incorrectly in the Specification of the '611 patent. *See* Ex. 1001, col. 2, ll. 57–60 ("LEDs 197, 198 and 199").

The '611 patent describes a "diagnostic mode of operation" of controller 208, entered when the user sets switch 199 shown in Figure 3 above to diagnostic position 9. *Id.* at col. 3, ll. 36–38. The diagnostic mode allows the user to access the error codes stored in the memory of controller 208 from wall control 124. *Id.* at col. 3, ll. 38–42, Fig. 4. Specifically, when the user presses open push button 135, controller 208 communicates with wall control 124 to cause LED 137 to "pulse once for each stored error code," allowing the user to determine "the number of error codes" stored in the memory of controller 208. *Id.* at col. 3, ll. 49–54. Similarly, when the user presses close push button 134, controller 208 causes LED 137 to "pulse . . . a number of times corresponding" to each error code stored in its memory in sequence. *Id.* at col. 3, ll. 60–67, Fig. 5 (showing each error code and its corresponding number of LED blinks).

The '611 patent further describes a "learn mode operation" to "guide a user through installation and learn mode actions." *Id.* at col. 4, ll. 13–19, Fig. 6. Controller 208 "determines the user activities or steps needed during the learn process," identifies the beginning status (e.g., open or closed) of the barrier movement operator, and checks to determine whether the user has taken each determined action in sequence. *Id.* at col. 4, ll. 15–42. The '611 patent provides an example of learning "a time value for the max run timer," which is used to "determine whether the movement of the barrier has been going on for too long without reaching the destination limit." *Id.* at col. 4, ll. 43–47. The user presses MRT set button 205 (shown in Figure 3 above), LED 202 flashes to inform the user that the barrier should be moved to the closed limit, and after the barrier is closed, LED 217 flashes to direct the user to open the barrier by pressing open switch 215. *Id.* at col. 4,

ll. 50–63. Controller 208 then "counts the time of travel and adds five seconds to the counted value and stores the result for use" as the max run timer limit. *Id.* at col. 4, l. 66–col. 5, l. 3.

B. Illustrative Claim

Claim 1 of the '611 patent recites:

> 1. A barrier movement operator comprising:
>
> a controller, responsive to user input signals and operational signals for selectively energizing a motor to open and close a barrier;
>
> a remote input/output unit connected to the controller and remote therefrom for receiving user inputs and for displaying status of portions of the barrier movement operator;
>
> the controller for identifying faults in the operation of the barrier movement operator; and
>
> apparatus for communicating the identities of faults in the operation of the barrier movement operator to the remote input/output unit and for displaying the identified faults at the remote input/output unit.

C. Prior Art

The pending grounds of unpatentability in the instant *inter partes* review are based on the following prior art:

> U.S. Patent No. 6,184,641 B1, issued Feb. 6, 2001 (Ex. 1004, "Crimmins"); and
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> U.S. Patent Application Publication No. 2002/0170685 A1, published Nov. 21, 2002 (Ex. 1007, "Weik").

D. Pending Grounds of Unpatentability

The instant *inter partes* review involves the following grounds of unpatentability:

Reference(s)	Basis	Claims
Crimmins	35 U.S.C. § 102(b)[3]	1–3, 10, 11, and 14
Crimmins and Weik	35 U.S.C. § 103(a)	4–8, 12, and 13

II. ANALYSIS

A. Claim Interpretation

The Board interprets claims in an unexpired patent using the "broadest reasonable construction in light of the specification of the patent in which [they] appear[]." 37 C.F.R. § 42.100(b). Under this standard, we interpret claim terms using "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997); *see In re Smith Int'l, Inc.*, 871 F.3d 1375, 1382–83 (Fed. Cir. 2017) ("[The] broadest reasonable interpretation . . . is an interpretation that corresponds with what and how the inventor describes his invention in the specification."). "Under a broadest reasonable interpretation, words of the

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[3] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. §§ 102, 103, and 112. Because the challenged claims of the '611 patent have an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102, 103, and 112.

claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history." *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016). Our interpretation "'cannot be divorced from the specification and the record evidence,' and 'must be consistent with the one that those skilled in the art would reach.' A construction that is 'unreasonably broad' and which does not 'reasonably reflect the plain language and disclosure' will not pass muster." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (citations omitted), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017).

In the Decision on Institution, based on the parties' arguments, *see* Pet. 13–32; Paper 6, 5–16, and record at the time, we preliminarily interpreted the following limitations of claim 1:

Limitation	Interpretation
"controller"	a microprocessor, processor, or other programmable logic that controls the operation of the barrier movement operator
"remote input/output unit"	a remote piece of hardware that can be used both for providing data and receiving data
"remote input/output unit connected to the controller and remote therefrom"	(does not require a "wired electrical connection or path" between the remote input/output unit and controller, and no further interpretation is necessary)
"faults in the operation of the barrier movement operator"	operating characteristics of the barrier movement operator that require correction or maintenance

Dec. on Inst. 10–13, 17–19. We also preliminarily interpreted the following limitations as means-plus-function limitations under 35 U.S.C. § 112, sixth paragraph:

Limitation	Interpretation
"apparatus for communicating the identities of faults in the operation of the barrier movement operator to the remote input/output unit and for displaying the identified faults at the remote input/output unit" (claim 1)	Functions: communicating the identities of faults in the operation of the barrier movement operator to the remote input/output unit and displaying the identified faults at the remote input/output unit Corresponding structure: controller 208, path 126 from controller 208 to wall control 124, and LED 137
"apparatus for selecting one of an operating mode or a diagnostic mode" (claim 2)	Function: selecting one of an operating mode or a diagnostic mode Corresponding structure: switch 199
"display apparatus for displaying the error codes" (claim 10)	Function: displaying the error codes Corresponding structure: LED 137 on wall control 124
"apparatus for storing error messages generated during the operation of the barrier movement operator" (claim 11)	Function: storing error messages generated during the operation of the barrier movement operator Corresponding structure: memory of controller 208
"apparatus for requesting stored error messages from the controller" (claim 12)	Function: requesting stored error messages from the controller Corresponding structure: a button on wall control 124

Id. at 13–17. We specifically "encouraged [the parties] to address the interpretation of all limitations in the claims potentially subject to means-plus-function treatment in their papers during trial." *Id.* at 16–17.

In its Response, Patent Owner states that Petitioner's proposed interpretations "introduce concepts that have no basis in the claim's plain language." PO Resp. 3–4. Patent Owner, however, does not offer any alternative interpretations or take a position as to whether any of the limitations identified above are means-plus-function limitations under 35 U.S.C. § 112, sixth paragraph. Instead, Patent Owner argues that the claims should be interpreted according to their "plain language" and that "no construction is necessary for any claim term." *Id.* at 4. Petitioner adopts our preliminary interpretations. Reply 3.

Upon review of the full record from trial, we do not perceive any reason or evidence that compels any deviation from our earlier interpretations. *See* Dec. on Inst. 7–19. We adopt the previous analysis and conclude that no other terms require interpretation.

B. Principles of Law

To prevail in challenging claims 1–8 and 10–14 of the '611 patent, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

"Anticipation requires that every limitation of the claim in issue be disclosed, either expressly or under principles of inherency, in a single prior art reference," *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255–56 (Fed. Cir. 1989), and that the claim limitations be "arranged or combined in the same way as recited in the claim[]," *Net*

MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1371 (Fed. Cir. 2008).

However, "the reference need not satisfy an *ipsissimis verbis* test." *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

A claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, "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." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). The question of obviousness is resolved on the basis of underlying factual determinations, including "the scope and content of the prior art"; "differences between the prior art and the claims at issue"; and "the level of ordinary skill in the pertinent art."[4] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418. An obviousness determination requires finding "both 'that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'" *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418

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[4] Additionally, secondary considerations, such as "commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy." *Graham*, 383 U.S. at 17–18. Patent Owner, however, has not presented any such evidence.

(for an obviousness analysis, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does"). A motivation to combine the teachings of two references can 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) (citation omitted). Further, an assertion of obviousness "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *In re Nuvasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine "must be supported by a 'reasoned explanation'" (citation omitted)).

C. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art at the time of the '611 patent would have had "at least an undergraduate degree in electrical or computer engineering, or equivalent education, and two years of work experience in the fields of access control or automated door control systems, or equivalent work experience or training in the field of such technologies," citing the testimony of its declarant, Stuart Lipoff. Pet. 13 (citing Ex. 1003 ¶¶ 27–30). Patent Owner does not propose a different level of ordinary skill in the art in its Response. Patent Owner's declarant,

Nathaniel J. Davis IV, Ph.D., however, opines that a person of ordinary skill in the art would have had "at least an undergraduate degree in computer or electrical engineering (or equivalent education) along with at least two years of industry experience working with embedded computer systems or related technologies involving microcontrollers." Ex. 2006 ¶ 18.

Neither party explains in detail why the respective proposed level of ordinary skill in the art should be adopted nor how the different levels affect the parties' analyses. The parties' declarants agree that an ordinarily skilled artisan would have had an undergraduate degree in electrical or computer engineering (or the equivalent) and two years of work experience. The difference between the two is the substance of that work experience. Mr. Lipoff opines that it would be in "the fields of access control or automated door control systems," whereas Dr. Davis opines that it would be in "embedded computer systems or related technologies involving microcontrollers." *See* Ex. 1003 ¶ 29; Ex. 2006 ¶ 18.

Mr. Lipoff's proposed definition is consistent with the technology at issue in this proceeding. The '611 patent is directed to "barrier movement operators," such as "[g]ate operators and garage door operators," and "human interface methods and apparatus for such systems." Ex. 1001, col. 1, ll. 6–14. The '611 patent does not mention specifically "embedded" computer systems, but does disclose that barrier movement operators were known to include a "motor" and "controller" that "selectively energiz[es] the motor to move the barrier" and is "responsive to stimulus signals to perform various barrier movements." *Id.* at col. 1, ll. 9–19; *see also* Ex. 1004, col. 1, ll. 9–13 (Crimmins similarly disclosing that it is directed to "a controller for controlling the motor, interface, safety systems and other functions of a

commercial door or barrier operator"); Ex. 1007 ¶¶ 2–5 (Weik similarly disclosing that it is directed to "[a]utomated, motor-driven barriers"). Thus, an individual having experience working with barrier movement operators would have been familiar with their constituent parts, including motors and controllers for the devices. Based on the record developed during trial, including our review of the '611 patent and the types of problems and solutions described in the '611 patent and cited prior art, we agree with Mr. Lipoff's assessment of the level of ordinary skill in the art and apply it for purposes of this Decision.

D. Anticipation Ground Based on Crimmins
(Claims 1–3, 10, 11, and 14)

1. Crimmins

Crimmins discloses a "controller for controlling the motor, interface, safety systems and other functions of a commercial door or barrier operator." Ex. 1004, col. 1, ll. 9–13.
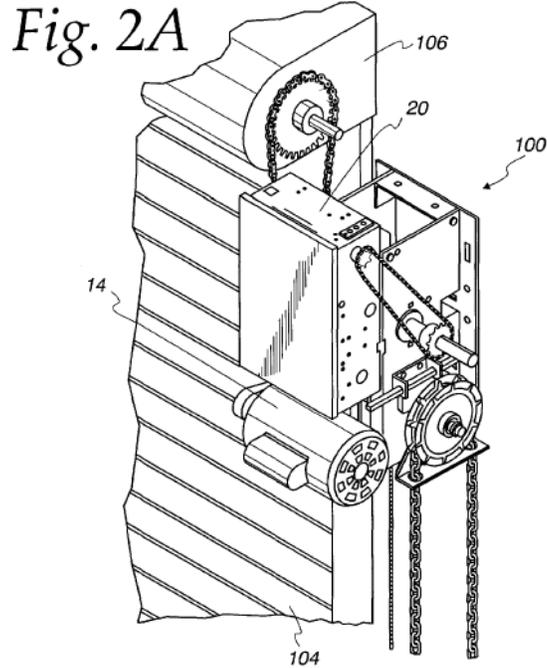
Figure 2A of Crimmins is reproduced below.

Figure 2A depicts commercial door operator 100, motor 14, logic control device (controller) 20, door 104, and door housing 106. *Id.* at col. 5, ll. 27–36. Figure 4 of Crimmins is reproduced below.
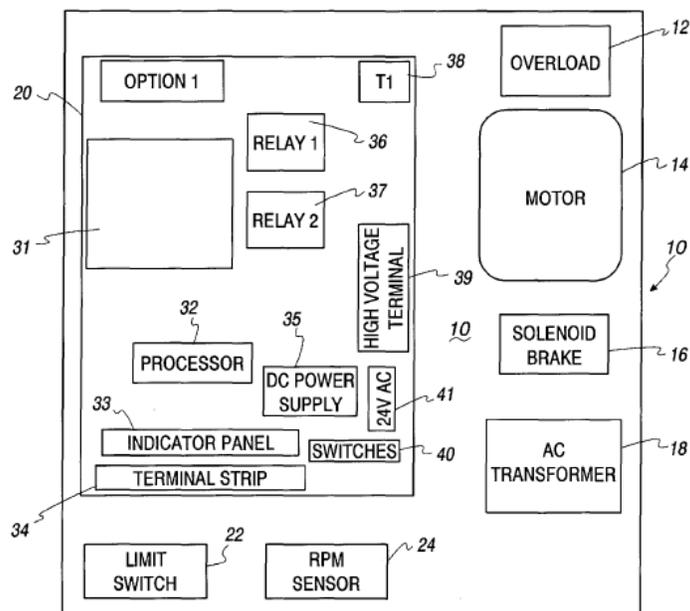
Figure 4 depicts the components of logic control device 20, including indicator panel 33 and microprocessor 32, which "controls operation of all the electronic functions on the control device" and may be a "Zilog brand microprocessor with 8K of onboard ROM." *Id.* at col. 5, ll. 40–60. Logic control device 20 communicates with motor 14 to cause the door to open, close, and stop in response to a user pressing a corresponding button on a wall unit or at logic control device 20 itself. *Id.* at col. 6, ll. 48–51, col. 7, ll. 32–34, col. 10, ll. 19–55.

Crimmins's system includes an "onboard cycle counter," which "increments a mechanical odometer type counter every time the commercial door cycles open or closed" and activates a warning light when the counter reaches a "predetermined amount," indicating that "service should be provided." *Id.* at col. 3, ll. 14–17, col. 4, ll. 37–47, col. 9, ll. 4–19. Specifically, a "diagnostic LED may be located both on the logic control device and the wall unit, next to the three button controls (open/close/stop)." *Id.* at col. 9, ll. 4–6. Crimmins's system also allows the user to "program various features of the unit" and to operate the unit in different modes, such as "diagnostic mode," "memory clear mode," and "cycle timer learn mode," using switches 40 of logic control device 20. *Id.* at col. 6, ll. 23–28, col. 10, l. 56–col. 12, l. 24. For example, "[w]hen the diagnostic mode is selected in the DIP [dual in-line package] switch, the diagnostic light will flash two times every second and the door will not function while in this mode." *Id.* at col. 12, ll. 4–6.

2. Whether Crimmins Includes Exhibit A

As an initial matter, we address Patent Owner's argument that Petitioner's asserted ground fails because anticipation requires that a single prior art document disclose every limitation of a claim, but Petitioner relies on "two different documents"—U.S. Patent No. 6,184,641 B1 ("the '641 patent") and Exhibit A referenced therein—in its arguments. *See* PO Resp. 4–8. Patent Owner contends that the '641 patent as issued does not include Exhibit A and "does not include any language that could be considered an 'incorporation by reference' of Exhibit A, which would have the effect of including the text of the document in the patent itself." *Id.* at 7–8.

The '641 patent issued from U.S. Patent Application No. 09/526,969 ("the '969 application"), filed on March 16, 2000, which is a continuation of U.S. Patent Application No. 09/063,832 ("the '832 application"), filed on April 21, 1998, and subsequently abandoned. The written description of the '969 application as filed included the following disclosure:

> Exhibit A is a copy of a source listing for computer software to operate a commercial door operator having the functions described above and including the following modules: switches.srs, main_cdo.srs, main_cdo.inc, interrupt.src and tasker.src.

Ex. 1009, 56. The '969 application was filed with the source code listing labeled "Exhibit A." *Id.* at 67–126. As issued, the '641 patent includes the paragraph quoted above, but Exhibit A was not printed in the issued patent.[5] *See* Ex. 1004, col. 12, ll. 25–29; Ex. 2001, col. 12, ll. 25–29.

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[5] The transmittal form submitted with the '969 application indicates that the application contains "94 pages of the specification," which includes the portion labeled as "Exhibit A." *See* Ex. 1009, 33–126 (application as filed),

Petitioner filed a copy of the '641 patent and Exhibit A together as

Exhibit 1004 in this proceeding, and we instituted a trial to determine

whether claims 1–3, 10, 11, and 14 are anticipated by the '641 patent. *See*

Dec. on Inst. 6 (referring to "U.S. Patent No. 6,184,641 B1," as provided in

Exhibit 1004, as "Crimmins"), 31; Pet. 3 (referring to "Crimmins" as

"U.S. Patent No. 6,184,641 to Crimmins issued on February 6, 2001"). The

parties agree that the '641 patent, by virtue of its issue date, is prior art to the

challenged claims under 35 U.S.C. § 102(b). *See* Pet. 3; Tr. 40:4–9. Thus,

we must determine whether the '641 patent includes Exhibit A. We

conclude that the '641 patent incorporates Exhibit A by reference and,

therefore, need not address any of the parties' remaining arguments on the

issue. *See* PO Resp. 4–8; Reply 3–12.

> The U.S. Court of Appeals for the Federal Circuit has held that
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> anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. Material not explicitly contained in the single, prior art document may still be considered for purposes of anticipation if that material is incorporated by reference into the document. Incorporation by reference provides a method for integrating material from various documents into a host document—a patent or printed publication in an anticipation determination—by citing such material in a manner that makes clear that the material is effectively part of the host document as if it were explicitly contained therein. To incorporate material by reference, the host document must identify with detailed particularity what specific

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153. When asked at the oral hearing, however, neither party could explain why Exhibit A was not printed in the issued patent. Tr. 16:23–17:11, 39:20–40:3.

material it incorporates and clearly indicate where that material
is found in the various documents.

Advanced Display Sys., Inc. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed.

Cir. 2000) (citations omitted). Whether a patent describes material to be

incorporated by reference with sufficient particularity is assessed from the

perspective of a person of ordinary skill in the art. *Id.* at 1283.

The '641 patent states that it is "a continuation, of prior application

number U.S. Ser. No. 09/063,832, filed Apr. 21, 1998, now abandoned

which is hereby incorporated herein by reference in its entirety." Ex. 1004,

col. 1, ll. 3–6; *see also* Ex. 1009, 153 (the transmittal form of the '969

application, which issued as the '641 patent, citing the '832 application and

stating that "[t]he entire disclosure of the prior application . . . is considered

as being part of the disclosure of the accompanying application, and is

hereby incorporated by reference therein"). The written description of the

'832 application is substantively the same as that of the '969 application

(and the issued '611 patent), including the paragraph quoted above

referencing "Exhibit A" and Exhibit A itself. *Compare* Ex. 1012, 7–100,

with Ex. 1009, 33–126, *and* Ex. 1004, col. 1, l. 7–col. 12, l. 35. Thus, the

'641 patent includes both an express statement that the '832 application is

incorporated by reference "in its entirety" as well as a specific reference to

"Exhibit A" (and particular named source code modules therein), which is

part of the disclosure of the '832 application. *See* Ex. 1004, col. 1, ll. 3–6,

col. 12, ll. 25–29.

We are persuaded that the '641 patent thus identifies with sufficient

particularity what material it incorporates (the entire '832 application,

including Exhibit A) and where that material may be found (the

'832 application as filed), such that a person of ordinary skill in the art

readily would have understood what is incorporated and been able to locate it. *See, e.g.*, *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 907 (Fed. Cir. 2018) (determining that a statement that an earlier patent "is incorporated herein by this reference" was "plainly sufficient to incorporate [the patent] in its entirety" (emphasis omitted)); *Harari v. Lee*, 656 F.3d 1331, 1335–36 (Fed. Cir. 2011) (determining that a statement with "broad and unequivocal language" that the disclosure of a prior application is "hereby incorporate[d] by reference" was sufficient to incorporate the application in its entirety). Indeed, Patent Owner agrees that the '641 patent incorporates the '832 application by reference in its entirety. Tr. 39:3–6. Exhibit A is part of the '832 application. Ex. 1012, 41–100. Thus, Exhibit A is incorporated by reference in the '641 patent, and we refer to both herein as "Crimmins" for purposes of assessing Petitioner's asserted grounds.

3. Claim 1

Petitioner explains in detail how Crimmins[6] discloses every limitation of claim 1, relying on the testimony of Mr. Lipoff as support. *See* Pet. 32–49; Ex. 1003 ¶¶ 97–124. Petitioner asserts that Crimmins discloses a "barrier movement operator" (i.e., commercial door operator 100) comprising a "controller" (i.e., logic control device (controller) 20 with microprocessor 32) that selectively energizes a motor to open and close a "barrier" (i.e., door 104) and identifies "faults" in the operation of commercial door operator 100; and a "remote input/output unit" (i.e., wall unit with three button controls (open/close/stop) and a diagnostic LED) that

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[6] Crimmins was not of record during prosecution of the '611 patent. *See* Ex. 1001, (56); Pet. 3. Crimmins is assigned to Patent Owner.

receives user inputs and displays the "status" of portions of commercial door operator 100. Pet. 32–46; *see also id.* at 34 n.9, 40 n.10 (arguing that Crimmins discloses the "controller" and "remote input/output unit" limitations even if not interpreted under 35 U.S.C. § 112, sixth paragraph). Petitioner contends that the "status" displayed at the wall unit may be, for example, the diagnostic LED being turned on or flashing depending on the current "mode" or reset status of the controller. *Id.* at 40–41.

Petitioner contends that the "faults" identified by the logic control device and displayed at the wall unit may be, for example, various faults that the microprocessor executing the Exhibit A source code detects, as shown in the following table:

Software Routine of Crimmins's Exhibit A	Fault	Display

OverFlow: CP   OverFlowCounter,#80h   ;1/4 sec. when error
         ;turns diag LED on and off every
     JR   UGT.LEDon
 	
Ex. 1004 at A-17.
	Overflow Condition	LED Blinking Every 1/4 Second

FinalChk: CP   ServiceFlash,#0FFH   ;if set service cycle has expired
     JR   EQ,OverFlow   ;flash LED call Service man
     JR   LEDoff
 	
Id. at A-18.
	Service Cycle Has Expired	LED Flashing

	System Error	LED On
system_error: ; or P2,#01000000b ; turn on the LED to indicate fault ; JR system_error .byte 256-check_sum_value *Id.* at A-10.		

ExitCloseTimer: TM   Vector4,#01000111B ;if button debounce occurs and it
       ;is still being held, turn on diag.
       ;LED to let user know Cmd Ack.
   JP   Z,LEDoff
   JP   LEDon
   IRET
 	
Id. at A-19.
	Button
	
	Debounce
	
	and Still
	
	Being Held[12]
		LED On

IncNextReg: INC   MMid
;   JP   Z,OverFlow   ;most siginficant byte over run
       ;error, jump to set diag. LED
;   AND   P2,#10111111B   ;Clear diag. bit
   IRET
 	
Id. at A-20.
	Most
	
	Significant
	
	Byte Over
	
	Run Error
		LED On

Id. at 42–49. As explained above, "faults in the operation of the barrier movement operator" means operating characteristics of the barrier movement operator that require correction or maintenance. *See supra* Section II.A. We are persuaded that the faults identified above meet that interpretation, which Patent Owner does not dispute in its Response. *See, e.g.*, Pet. 43–46; Ex. 1004, col. 3, ll. 14–21, col. 4, ll. 37–47 (when the door operates (i.e., moves up and down) a certain number of times, "the customer is alerted to the fact . . . and that service should be provided"); Ex. 1003 ¶¶ 115–117.

With respect to the "apparatus" limitation of claim 1, Petitioner argues that Crimmins discloses "a controller that is programmed to blink, flash, or turn on an LED on a wall unit to indicate various faults." Pet. 47. For example, as shown in the table above, "Crimmins's controller enables the

diagnostic LED to communicate fault conditions by flashing the LED at a specific rate (*e.g.*, one blink per 1/4 second), flashing the LED, or turning on the LED," depending on which fault has occurred. *Id.* at 47–48 (arguing that Crimmins discloses "sending pulses via a wired electrical path to flash an LED at different frequencies (every 1/4 second, flashing, on for a period of time) for different errors"). Petitioner contends that Crimmins's arrangement (i.e., the logic control device connected to the wall unit with a diagnostic LED) performs the functions of "communicating the identities of faults in the operation of the barrier movement operator to the remote input/output unit" and "displaying the identified faults at the remote input/output unit," and is the same as or equivalent to the arrangement Petitioner identifies as the corresponding structure in the Specification of the '611 patent: "controller 208 that sends a number of pulses along a wired electrical path 126 to wall unit 124 to pulse LED 137 a number of times corresponding to an error code, in accordance with the signaling algorithm of Figure 5." *Id.* at 46–49.

As explained above, the "apparatus" recited in claim 1 is a means-plus-function limitation and the corresponding structure in the Specification of the '611 patent is controller 208, path 126 from controller 208 to wall control 124, and LED 137. *See supra* Section II.A. This formulation is slightly broader than what Petitioner proposes, as it does not require, for instance, pulsing the LED in accordance with the alleged "signaling algorithm of Figure 5." We are persuaded by Petitioner's arguments that Crimmins discloses the "apparatus" recited in claim 1, as discussed in further detail below. Petitioner's analysis for each of the

limitations of claim 1, supported by the testimony of Mr. Lipoff, which we credit, is persuasive.

Patent Owner makes two arguments with respect to the limitations of claim 1. First, Patent Owner argues that Crimmins does not disclose "communicating the identities of faults."[7] PO Resp. 8–17. According to Patent Owner, Crimmins's logic control device does not communicate the identities of faults to the wall unit because "it is not possible to discern the identity of a fault that triggered the LED to illuminate from the LED behavior." *Id.* at 9. Patent Owner points out that the LED behavior asserted by Petitioner for the last three faults in the table above is the same ("LED On"). *Id.* at 9–11. As to the first two faults in the table, Patent Owner argues that the LED actually behaves the same way for both faults, so "there is no way to discern which fault has occurred based on the behavior." *Id.* at 11–16. Patent Owner relies on Dr. Davis, who reviewed the source code in Exhibit A and testifies that the first two cited faults in the table above cause the same LED lighting routine to be called. *Id.* at 12–16 (citing Ex. 2006 ¶¶ 22–35). Specifically, Dr. Davis testifies that the "FinalChk" routine (for

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[7] Patent Owner and Dr. Davis do not dispute that Crimmins performs the other function of the "apparatus" limitation ("displaying the identified faults at the remote input/output unit") or that Crimmins discloses structure that is the same as or equivalent to the corresponding structure in the Specification of the '611 patent. *See* PO Resp. 8–17; Ex. 1013, 119:16–120:1. Indeed, Patent Owner agrees with our interpretation of the recited "apparatus" under 35 U.S.C. § 112, sixth paragraph, but Patent Owner and Dr. Davis did not apply that interpretation in their analyses. *See* PO Resp. 8–17; Tr. 26:9–15; Ex. 1013, 116:1–3. Patent Owner's only contention is that Crimmins does not disclose performing the function of "communicating the identities of faults in the operation of the barrier movement operator to the remote input/output unit."

the "Service Cycle Has Expired" fault) includes a "Jump Relative" (JR)
instruction to the "Overflow" routine (for the "Overflow Condition" fault).
Id. at 13–15. Therefore, according to Dr. Davis, the "Service Cycle Has
Expired" fault and the "Overflow Condition" fault flash the LED in the same
fashion. *Id.* Patent Owner contends that Crimmins discloses one LED
behavior for the first two faults shown in the table (LED flashing) and a
second LED behavior for the last three faults (LED on), but those behaviors
"do not identify which of the alleged faults within the set . . . has occurred."
Id. at 15–16 (emphasis omitted).

We disagree with Patent Owner's arguments. The functions of the
"apparatus" limitation in claim 1 are "communicating the identities of faults
in the operation of the barrier movement operator to the remote input/output
unit" and "displaying the identified faults at the remote input/output unit."
Thus, the claim only requires communication of the identities of at least two
faults "to the remote input/output unit" and the display of those identified
faults at the remote input/output unit. We do not see—and Patent Owner
does not point to—any limitation indicating *how* the identified faults are to
be displayed or any requirement that a user be able to visually distinguish
the display of one identified fault from another.

As reflected in the table above, Petitioner has shown that Crimmins's
logic control device identifies at least two faults (because the source code
includes routines for the different faults that can occur) and communicates
the identified faults to the wall unit (because the wall unit causes the
diagnostic LED to light a certain way once it is informed of the fault). *See*
Pet. 42–49. Indeed, Patent Owner acknowledges that Crimmins's diagnostic
LED "exhibits one behavior" in response to the logic control device

identifying a fault (among "a first set" of faults) and "another behavior" in
response to identification of a different fault (among "a second set" of
faults). PO Resp. 15. That alone suffices to disclose the claim limitation.
It also is consistent with the disclosure in the '611 patent, which does not
require the LED to uniquely identify faults. *See* Ex. 1001, col. 3, ll. 62–67,
Fig. 5 (error code E7 associated with multiple faults and causing "7 blinks"
of an LED).

Moreover, even if claim 1 requires visually distinguishable displays
for at least two identified faults, we are persuaded that Crimmins discloses
such displays for the "Overflow Condition" and "Service Cycle Has
Expired" faults. *See* Pet. 42–49. In response to Patent Owner's contention
that the LED behaviors for these two faults are really the same, Petitioner
points to language in Exhibit A and the written description of Crimmins
indicating that they are different.[8] Reply 16–17. Specifically, with respect

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[8] We disagree with Patent Owner's contention that Petitioner's argument on
this point in the Reply was improper. *See* Paper 20, 1–2. Petitioner asserted
in the Petition that Crimmins discloses two different faults ("Overflow
Condition" and "Service Cycle Has Expired") with two different LED
behaviors, citing, for example, the Exhibit A source code and portions of
Crimmins's written description regarding the service cycle. Pet. 43–47.
Petitioner also relied on the testimony of Mr. Lipoff, who similarly cited
both parts of Crimmins. *See id.*; Ex. 1003 ¶¶ 115–120. Patent Owner
responded that "the LED behavior is identical for the . . . two alleged faults."
PO Resp. 11–16. Petitioner, in its Reply, properly responded to that
argument, explaining why it believes Patent Owner's reading of Crimmins is
incorrect. *See* Reply 16–17; 37 C.F.R. § 42.23(b) ("A reply may only
respond to arguments raised in the corresponding . . . patent owner
response."); *Idemitsu Kosan Co., Ltd. v. SFC Co. Ltd.*, 870 F.3d 1376,
1380–81 (Fed. Cir. 2017) (permitting rebuttal argument from a petitioner in
response to a patent owner's argument that a reference taught away from a

to the "Overflow Condition" fault, the comments in the identified portion of the source code state: "turns diag LED on and off every . . . 1/4 sec. when error." Ex. 1004, A-17; *see* Pet. 43, 47; Reply 16–17. This discloses that when the fault occurs, the diagnostic LED will blink on and off every 1/4 second. Notably, with respect to the "Service Cycle Has Expired" fault, the comments in the identified portion of the source code are different: "if set service cycle has expired . . . *flash LED* call Service man." Ex. 1004, A-18 (emphasis added); *see* Pet. 43, 47; Reply 16. The fact that the source code comments are different indicates that the behavior of the LED is different for the "Service Cycle Has Expired" fault.

The written description of Crimmins supports such a reading as well. Crimmins discloses that the logic control device stores a "preprogrammed cycle count" in memory, which is "learned or programmed by programming the microprocessor" in the logic control device. Ex. 1004, col. 9, ll. 9–11, 30–43, Fig. 8. The microprocessor "increments a counter" each time the door opens or closes, "which is then compared with the preprogrammed cycle count." *Id.* at col. 9, ll. 12–29, col. 9, l. 44–col. 10, l. 16, Figs. 9A, 9B. "When the microprocessor detects a match, it enables the LED indicator[]" on the wall unit, causing the diagnostic LED to "flash . . . when the cycle counter reaches the preprogrammed cycle count." *Id.* at col. 9, ll. 4–16, col. 4, ll. 37–49 ("When the microprocessor detects that the number of cycles (such as the number of times the microprocessor opened the start coil switch) reaches the predetermined amount, a warning light is activated. The warning light can be a light emitting diode (LED) . . . mounted on the wall

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particular combination, as such argument was "simply the by-product of one party necessarily getting the last word").

control unit."), col. 9, l. 64–col. 10, l. 17 ("the routine issues a cycle count
alert at Step 619" when "the cycle counter value equals a stored value," and
"turn[s] off the warning light at Step 621" when the diagnostic mode is
entered again), Fig. 9B (step 619 of "Issue Cycle Count Alert Signal (Flash
Indicator Continuously)"). The specific Cycle Count Alert Signal emitted
by the LED is described as follows: "[o]nce the cycle threshold or trip point
is reached the operator will *flash the diagnostic light once every two seconds
for two seconds* until the unit is serviced and the cycle counter is cleared."[9]
Id. at col. 12, ll. 20–23 (emphasis added).

Given the similar language used throughout Crimmins's disclosure,
we find that the portions of the written description quoted above pertain to
the same "Service Cycle Has Expired" fault as the cited routine in the
Exhibit A source code—the written description portions refer to a
programmable or settable "cycle counter" and "cycle threshold," and the
source code similarly refers to a "set service cycle [that] has expired." We
also find that the quoted portions of Crimmins's specification and the
description found in the source code do not refer to two different
embodiments. Rather, the written description provides a general description
of the disclosed invention and the source code provides a specific example
of how that same invention may be implemented. *See id.* at col. 12,

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[9] Crimmins discloses different flashing when other events occur. *See, e.g.*,
Ex. 1004, col. 12, ll. 4–6 ("When the diagnostic mode is selected in the DIP
switch, the diagnostic light will flash two times every second and the door
will not function while in this mode."), 12–15 ("When the DIP switch is in
the cycle timer learn mode, the cycle counter warning light will flash the
number of tens of thousands of times the unit has cycled followed by a three
second pause.").

ll. 25–29 ("Exhibit A is a copy of a source listing for computer software to operate a commercial door operator having the functions *described above*" (emphasis added)).

Thus, Crimmins discloses flashing the diagnostic LED once every two seconds for two seconds when the "Service Cycle Has Expired" fault occurs (i.e., when the "cycle threshold" is "reached"), which is different from the flashing when the "Overflow Condition" fault occurs, where the diagnostic LED flashes every 1/4 second. Regardless of the functionality of the source code in operation, we are persuaded that a person of ordinary skill in the art, reading Crimmins as a whole for all that it discloses, would have understood Crimmins to describe two different LED behaviors for two different identified faults. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991) (holding that "the dispositive question regarding anticipation [is] whether one skilled in the art would reasonably understand or infer" from the prior art reference that the reference discloses all of the limitations of the claim); *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991) ("[Anticipation requires that there be] no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the art in the field of the invention."), *overruled in part on other grounds by Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1293 (Fed. Cir. 2009). We credit Mr. Lipoff's testimony in that regard, which is consistent with the portions of Crimmins quoted above. *See* Ex. 1003 ¶¶ 115–120; Ex. 1014 ¶¶ 45–46.

Second, Patent Owner argues that Petitioner improperly relies on "two differently named components" of Crimmins as disclosing a "remote input/output unit." PO Resp. 17–18. Specifically, Patent Owner contends

that in the portions cited by Petitioner, Crimmins refers both to a "wall unit" and a "wall switch," but the reference "is without any indication of how its 'wall unit' and its 'wall switch' relate to one another." *Id.* (citing Pet. 39–40; Ex. 1004, col. 4, ll. 47–48, 60–61, col. 6, ll. 48–49, col. 9, ll. 4–6).

We agree with Petitioner, however, that a person of ordinary skill in the art would have understood Crimmins to be using the terms synonymously to refer to a component located on the wall that has button controls to open, close, and stop movement of the barrier and a diagnostic LED. Crimmins discloses that wall units were known in the art to include functionality for opening, closing, and stopping movement of a barrier. *See* Ex. 1004, col. 3, ll. 28–33 ("Most commercial garage door openers include a wall mounted switch for allowing a user to command the open/close/stop functions. When the service provider installs the operator or performs maintenance, it is often inconvenient for him to leave the operator and climb down the ladder to operate the open/close/stop switches on the wall."), col. 10, ll. 19–21 ("Typical open/close/stop controls for commercial door operators are in the form of three button wall control stations.").

Then, in describing the disclosed invention, Crimmins states that the component includes a diagnostic LED in addition to three button controls for opening, closing, and stopping movement of the barrier. *See id.* at col. 9, ll. 4–8 ("A diagnostic LED may be located both on the logic control device and *the wall unit, next to the three button controls (open/close/stop).* The diagnostic LEDs flash at both the controller in the head unit and the wall unit when the cycle counter reaches the preprogrammed cycle count." (emphasis added)), col. 4, ll. 39–48 (disclosing "an LED mounted on the wall control unit" or, "[a]lternatively, a display can be mounted . . . on the

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wall unit"), col. 6, ll. 48–51 (disclosing that "the user selects open (up) or close (down) from a wall switch (not shown [in Figure 5])"). The fact that Crimmins uses slightly different wording in various places (e.g., "wall unit," "wall control unit," "wall mounted switch," "wall switch," "wall control station[]") does not mean that the reference is describing different components. The basic description of what the component includes, where it is located, and what it does is the same in each case. Thus, contrary to Patent Owner's arguments, a person of ordinary skill in the art would have understood the "wall unit" and "wall switch" disclosed in Crimmins to refer to the same component. We also credit Mr. Lipoff's testimony on this point, as it is consistent with the portions of Crimmins quoted above. *See* Ex. 1003 ¶¶ 109–113; Ex. 1014 ¶¶ 52–53.

We are persuaded by Petitioner's explanations and supporting evidence, and we find that Crimmins discloses every limitation of claim 1. Petitioner has proven, by a preponderance of the evidence, that claim 1 is anticipated by Crimmins under 35 U.S.C. § 102(b).

4. Claims 2, 3, 10, and 11

Petitioner explains sufficiently how the limitations of dependent claims 2, 3, 10, and 11 are disclosed by Crimmins, with supporting testimony from Mr. Lipoff. *See* Pet. 49–57; Ex. 1003 ¶¶ 125–142. Claim 2 recites that "the controller comprises apparatus for selecting one of an operating mode or a diagnostic mode." As explained above, the recited "apparatus for selecting" is a means-plus-function limitation and the corresponding structure in the Specification of the '611 patent is switch 199. *See supra* Section II.A. Petitioner argues that Crimmins's DIP switch

performs the recited function of selecting an operating mode or diagnostic mode and is at least equivalent to switch 199 because it operates "the same way, *i.e.*, by adjusting the position of a switch" to select a particular mode. Pet. 49–51 (citing Ex. 1004, col. 11, ll. 26–29 ("[d]ifferent modes can be set by adjusting the various DIP switches"), col. 12, ll. 4–11 ("the diagnostic mode is selected in the DIP switch")). Patent Owner does not dispute that Crimmins's DIP switch is an apparatus for selecting that is the same as, or the equivalent of, switch 199 disclosed in the '611 patent.

Claim 3 depends from claim 2, and recites that "the remote input/output unit comprises a first input device responsive to user interaction while in the operating mode for transmitting signals to the controller representing barrier movement requests." As explained above, "remote input/output unit" means a remote piece of hardware that can be used both for providing data and receiving data. *See supra* Section II.A. Petitioner argues that Crimmins discloses a wall unit with "three button controls (open/close/stop)" that, when selected by a user, cause a corresponding movement (open or close) signal to be sent to the controller. Pet. 51–52 (quoting Ex. 1004, col. 9, ll. 5–6; citing, *inter alia*, *id.* at col. 3, ll. 28–30, col. 6, ll. 48–53). Patent Owner does not dispute Petitioner's contention, and we find that the cited disclosure meets the limitation recited in claim 3.

Claim 10 recites that "the apparatus for communicating communicates error codes representing the fault identities to the remote input/output unit and the remote input/output unit comprises display apparatus for displaying the error codes." As explained above, the recited "apparatus for communicating" is a means-plus-function limitation and the corresponding structure in the Specification of the '611 patent is controller 208, path 126

from controller 208 to wall control 124, and LED 137. *See supra* Section
II.A. The recited "apparatus for displaying" also is a means-plus-function
limitation and the corresponding structure is LED 137 on wall control 124.
See id. Petitioner contends that Crimmins's controller flashes the LED
differently depending on the error code communicated, and we agree for the
reasons set forth above, despite Patent Owner's contentions to the contrary.
See supra Section II.D.3. Petitioner further argues that Crimmins's LED
performs the recited function of displaying error codes and is at least
equivalent to LED 137. Pet. 53–55. Patent Owner does not dispute
Petitioner's contention that Crimmins's LED is an "apparatus for
displaying" that is the same as or equivalent to the "apparatus for
displaying" disclosed in the '611 patent. We agree with Petitioner that
Crimmins's LED meets this further limitation recited in claim 10.

Claim 11 recites that "the controller comprises apparatus for storing
error messages generated during the operation of the barrier movement
operator." As explained above, the recited "apparatus for storing" is a
means-plus-function limitation and the corresponding structure in the
Specification of the '611 patent is memory of controller 208. *See supra*
Section II.A. Petitioner argues that Crimmins's controller includes memory
that performs the recited function of storing error messages (e.g., an "error
flag") and is at least equivalent to the memory of controller 208. Pet. 55–57
(citing, *inter alia*, Ex. 1004, col. 5, ll. 53–60, Fig. 7). Patent Owner does not
dispute Petitioner's contention, and we find that the cited disclosure meets
the limitation recited in claim 11.

Patent Owner does not argue separately dependent claims 2, 3, 10, and
11 in its Response. We have reviewed Petitioner's contentions and

supporting evidence, including the testimony of Mr. Lipoff, and are persuaded that Petitioner has proven, by a preponderance of the evidence, that dependent claims 2, 3, 10, and 11 are anticipated by Crimmins under 35 U.S.C. § 102(b), for the reasons stated by Petitioner.

5. Claim 14

Claim 14 recites that "the error messages are displayed as predetermined number of flashes on an LED of the remote input/output unit." As issued, claim 14 depended from claim 11 (which in turn depends from claim 1). Claim 14 later was corrected in a certificate of correction dated June 26, 2007, to depend from claim 12 (which in turn depends from claim 11). Ex. 1001.

Petitioner argues in its Petition that Crimmins anticipates claim 14, citing disclosure from Crimmins for the additional limitation recited in the claim. Pet. 42–49, 57. The only ground on which we instituted trial as to claim 14 is anticipation under 35 U.S.C. § 102(b).[10] Dec. on Inst. 31. Claim 14, however, includes the limitations of parent claim 12. Petitioner does not contend that Crimmins anticipates claim 12, but rather argues that claim 12 would have been obvious over Crimmins and Weik, relying on the combined teachings of both references for the additional limitation recited in claim 12. Pet. 66–70; *see infra* Section II.E.2. We also note that Petitioner

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[10] Petitioner also asserted that claim 14 would have been obvious over Crimmins in two combinations with other references (Moore-o-Matic (Ex. 1005) and LiftMaster (Ex. 1006), and Moore-o-Matic, LiftMaster, and Weik) under 35 U.S.C. § 103(a). Dec. on Inst. 7. However, we determined that Petitioner had not demonstrated a reasonable likelihood of prevailing as to those grounds. *Id.* at 26–27, 30.

acknowledged at the oral hearing that Crimmins does not disclose flashing

the LED a predetermined number of times for a specific fault, but instead

flashes the LED at different *frequencies* depending on which identified fault

is being displayed. *See* Tr. 12:10–13:8. Accordingly, because Petitioner has

not shown that Crimmins discloses all of the limitations of claim 14,

Petitioner has not proven, by a preponderance of the evidence, that claim 14

is anticipated by Crimmins under 35 U.S.C. § 102(b).

E. Obviousness Ground Based on Crimmins and Weik
(Claims 4–8, 12, and 13)

1. Weik

Weik describes a "parking area entrance or exit barrier" with a

"control system which receives inputs from various accessories associated

with the operation of the barrier, and which provides control signals to the

various accessories of the barrier." Ex. 1007, Abstract.

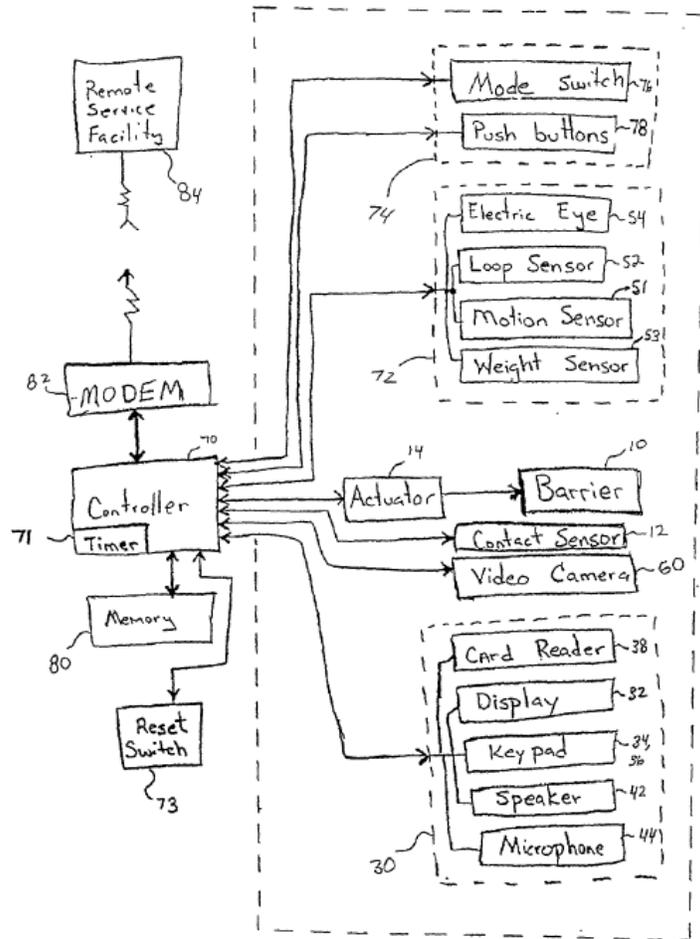Figure 5 of Weik is reproduced below.

FIG. 5

Figure 5 is a block diagram depicting various components of the control system and the connections between components. *Id.* ¶¶ 41, 58. First controller 70 "manages the operations associated with" first barrier 10, stores "events, alarms and warnings as they occur" in memory 80, and has a two-way connection with various other devices, such as customer terminal 30. *Id.* ¶¶ 58–60.

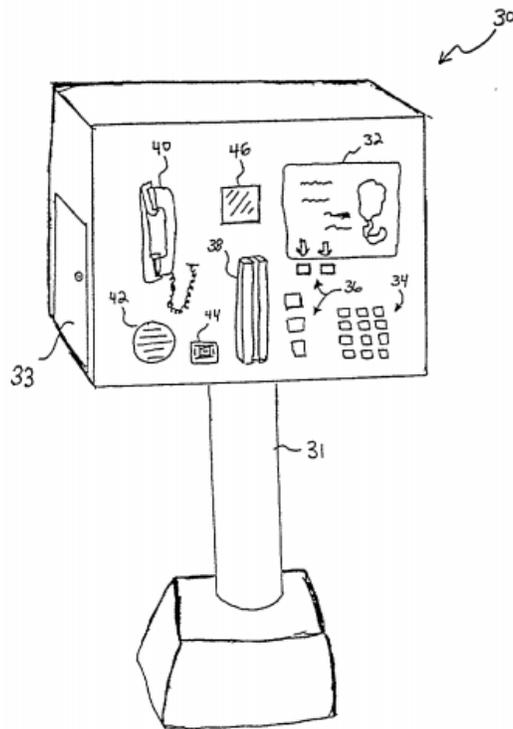Figure 2 of Weik is reproduced below.

FIG. 2

Figure 2 depicts customer terminal 30, which includes, *inter alia*, liquid-crystal display (LCD) screen 32 and multi-key touch pad 34. *Id.* ¶¶ 38, 47. "During operation, the controller 70 will monitor the performance of the various accessories and determine whether the accessories are functioning properly." *Id.* ¶ 63. Also, "the controller 70 maintains a fault log in the memory 80, [and] when a parking attendant enters a command via the keypad 34 on the customer terminal 30, the fault log could be displayed on the LCD screen 32." *Id.* Displaying the fault to the parking attendant on LCD screen 32 "enable[s] the parking attendant to call only the necessary service [personnel]." *Id.* ¶ 64.

2. Analysis

Petitioner explains how Crimmins and Weik[11] collectively teach every limitation of dependent claims 4–8, 12, and 13, relying on the testimony of Mr. Lipoff as support. *See* Pet. 64–74; Ex. 1003 ¶¶ 157–181.

Claim 6 depends from claim 1, and recites that "the remote input/output unit comprises a user actuatable error code query input device." Claim 12 depends from claim 11, and recites that "the remote input/output device comprises apparatus for requesting stored error messages from the controller." As explained above, the recited "apparatus" in claim 12 is a means-plus-function limitation and the corresponding structure in the Specification of the '611 patent is a button on wall control 124. *See supra* Section II.A. Claim 13 also depends from claim 11,[12] and recites that "the remote input/output device comprises a user actuatable push button for requesting stored error messages from the controller." With respect to these claims, Petitioner argues that controller 70 in Weik maintains a "fault log" in memory 80 that is displayed on LCD screen 32 "when a parking attendant enters a command via the keypad 34" of customer terminal 30. Pet. 66–68 (quoting Ex. 1007 ¶ 63; citing Ex. 1007, Fig. 2 (depicting keypad 34 with buttons), Fig. 4 (depicting the keypad on a wall unit)) (emphasis omitted). According to Petitioner and Mr. Lipoff, a person of ordinary skill in the art would have understood that Weik's "fault log" stores error messages that are

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[11] Weik was not of record during prosecution of the '611 patent. *See* Ex. 1001, (56); Pet. 3.

[12] Claim 13 was corrected in a certificate of correction dated June 26, 2007, to depend from claim 11 (which in turn depends from claim 1). Ex. 1001.

requested and displayed when the user pushes a button on the keypad. *Id.* at 69 (citing Ex. 1003 ¶ 166).

Claim 4 depends from claim 3, and recites that "the remote input/output unit is responsive to user interaction while in the diagnostic mode for transmitting signals to the controller representing diagnostic inquiries." Petitioner again relies on Weik's teaching of a user pressing a button on a wall unit to submit a request to the controller and the "fault log" then being displayed on the LCD screen. *Id.* at 70. According to Petitioner and Mr. Lipoff, a person of ordinary skill in the art "would have understood that, in Weik, a diagnostic mode is entered when the user enters the command to request the fault log," "that Weik's wall unit is responsive to this user interaction because it transmits a request to the controller for the fault log," and "that this request constitutes a signal that represents diagnostic inquiries because the request seeks information about whatever faults have occurred and been recorded in memory by the controller." *Id.* at 70–71 (citing Ex. 1007 ¶¶ 31, 63–64; Ex. 1003 ¶ 169).

Claim 5 depends from claim 2, and recites that "the remote input/output unit comprises a first display device operative while in the operating mode for displaying operating parameters and operative in the diagnostic mode for displaying diagnostic parameters." Petitioner contends that Crimmins's wall unit (the alleged "remote input/output unit") has a blinking LED and display that are "operative in an operating mode for displaying operating parameters, such as whether the cycle counter is less than a predetermined number, the actual cycle count of the door, whether the controller is in the process of being reset, or whether a DIP switch is in an unused configuration." *Id.* at 71–72. Petitioner relies on Weik as teaching a

display device "operative in the diagnostic mode for displaying diagnostic parameters," again citing Weik's fault log display functionality. *Id.* (citing Ex. 1007 ¶¶ 59, 63, 70; Ex. 1003 ¶¶ 172–173).

Claim 7 depends from claim 6, and recites that "the controller responds to an error code query input from the remote input/output unit by sending to the remote input/output unit, error codes identifying faults detected in the operation of the barrier movement operator." Again relying on Weik's fault log display functionality, Petitioner asserts that a person of ordinary skill in the art "would have understood that actuating buttons to input a 'command,' as disclosed by Weik, . . . teaches an 'error code query input' to the controller that, in the combined system, requests stored error codes," and Weik's "controller responds by sending the stored fault information to the remote terminal (so that it can be displayed on the terminal's screen)." *Id.* at 73–74 (citing Ex. 1007 ¶ 63; Ex. 1003 ¶¶ 177–178).

Claim 8 depends from claim 7, and recites that the barrier movement operator further comprises "display apparatus at the remote input/output unit on which the error codes from the controller can be displayed." Petitioner relies on Weik's teachings regarding error codes as explained above in connection with claim 7, and relies on Crimmins as disclosing a "display apparatus," i.e., "an LED on a wall-mounted control unit that blinks, flashes, or is switched on to display various faults," referring to Petitioner's arguments regarding the "apparatus for communicating . . . and for displaying" limitation in claim 1. *Id.* at 46–49, 73–74.

Petitioner also explains why a person of ordinary skill in the art would have been motivated to combine the references' teachings to achieve the

devices recited in each of claims 4–8, 12, and 13 and would have had a reasonable expectation of success in doing so, again with supporting testimony from Mr. Lipoff. *Id.* at 64–66; *see* Ex. 1003 ¶¶ 158–160, 167, 169–170, 174, 178. For example, Petitioner argues that a person of ordinary skill in the art would have had reason to add Weik's keypad and fault log display functionality to Crimmins's existing wall unit because doing so "would predictably improve Crimmins's system by enabling it to request error messages and to display error codes to a user at a more convenient location (*i.e.*, on a wall unit which can be easily access[ed] and viewed by a user) as well as on an on-demand basis," which would "enabl[e] the user to 'call only the necessary service [personnel],' as taught by Weik." Pet. 64–66, 69–74. Further, according to Petitioner and Mr. Lipoff, it would have been "a trivial matter [for an ordinarily skilled artisan] to add the buttons taught by Weik to the wall unit of Crimmins's system for requesting error messages and error codes, as it would be a simple matter of adding additional buttons and wiring or mounting a keypad onto the wall unit." *Id.* at 65. We agree with Petitioner's analysis and Mr. Lipoff's testimony, given the disclosures of the references and the level of ordinary skill in the art set forth above, and adopt it as our own. *See supra* Section II.C.

Patent Owner does not argue separately dependent claims 4–7, 12, and 13 in its Response. With respect to claim 8, Patent Owner repeats its argument regarding claim 1 that Crimmins's LED "cannot communicate the identities of the alleged faults." PO Resp. 18–19. We disagree, and find that Crimmins's diagnostic LED displays different behavior depending on the

fault that occurred.[13] *See supra* Section II.D.3. For the reasons set forth by

Petitioner and Mr. Lipoff, and explained above, with which we agree, we are

persuaded that Crimmins and Weik collectively teach all of the limitations of

claims 4–8, 12, and 13, and that a person of ordinary skill in the art would

have had reason to combine those teachings to achieve the barrier movement

operators recited in those claims and would have had a reasonable

expectation of success in doing so. Petitioner has proven, by a

preponderance of the evidence, that claims 4–8, 12, and 13 would have been

obvious based on Crimmins and Weik under 35 U.S.C. § 103(a).

F. Petitioner's Motion to Exclude

The party moving to exclude evidence bears the burden of proof to

establish that it is entitled to the relief requested—namely, that the material

sought to be excluded is inadmissible under the Federal Rules of Evidence.

See 37 C.F.R. §§ 42.20(c), 42.62(a).

Petitioner moves to exclude Exhibits 2003 and 2004 under Federal

Rules of Evidence 401–403 and 901(a). Mot. 1–9. Petitioner's Motion to

Exclude is dismissed as moot with respect to these exhibits, as we do not

rely on them in a manner adverse to Petitioner.

Petitioner also moves to exclude Dr. Davis's declaration (Ex. 2006)

under Federal Rules of Evidence 701 and 702. Mot. 9–14. Federal Rule of

Evidence 702 provides:

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[13] Given that finding, we need not decide Petitioner's argument that the
"on which the error codes from the controller can be displayed" language in
claim 8 is a statement of intended use not entitled to patentable weight. *See*
Reply 22–23.

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
>
> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based on sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Petitioner argues that Dr. Davis is not qualified to offer expert testimony in this proceeding and is not a person of ordinary skill in the art because he does not have work experience with access control or automated door control systems. Mot. 9–11. Rather, Dr. Davis states that he has experience with "embedded microprocessor[] systems."[14] *Id.* at 12 (quoting Ex. 2006 ¶ 13) (emphasis omitted).

We have reviewed Dr. Davis's testimony and are not persuaded that it would warrant the remedy of exclusion. As explained above, a person of ordinary skill in the art at the time of the '611 patent would have had at least an undergraduate degree in electrical or computer engineering, or equivalent education, and two years of work experience in the fields of access control or automated door control systems, or equivalent work experience or

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[14] Dr. Davis also states that in writing his declaration, he considered his "work experience in the fields of semiconductor device design and fabrication." Ex. 2006 ¶ 15. Patent Owner contends that the statement was a "clerical error," Opp. 6, but Dr. Davis testified during cross-examination that it was not, Ex. 1013, 79:21–80:6. Regardless, we are able to assess Petitioner's arguments based on Dr. Davis's qualifications as stated in his declaration and during cross-examination.

training in the field of such technologies. *See supra* Section II.C. Although Petitioner is correct that Dr. Davis has limited experience with access control or automated door control systems specifically, he has a B.S., M.S., and Ph.D. in electrical engineering and "more than 30 years of experience with computer hardware, architectures and networks in academic and practical situations." *See* Ex. 2006 ¶¶ 2, 13; Ex. 1013, 85:21–86:19 (Dr. Davis testifying that he has "taught undergraduate courses in microprocessor systems design" where students "opted to do an elevator control system that would open and close doors and track the movement of the door between floors and things like that, very analogous to the control system aspects of a garage door itself"). Further, Dr. Davis's testimony is limited to addressing the source code found in Exhibit A of Crimmins and whether it discloses two limitations of the claims. Ex. 2006 ¶¶ 22–40. We are able to determine what weight to give his testimony regarding the source code without excluding the testimony. Petitioner's Motion to Exclude is denied as to Exhibit 2006.

Accordingly, for the foregoing reasons, Patent Owner's Motion to Exclude is *denied-in-part* and *dismissed-in-part*.

III. ORDER

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–3, 10, and 11 are anticipated by Crimmins under 35 U.S.C. § 102(b), and that claims 4–8, 12, and 13 are unpatentable over Crimmins and Weik under 35 U.S.C. § 103(a). However, Petitioner has not demonstrated, by a preponderance of the evidence, that claim 14 is anticipated by Crimmins under 35 U.S.C. § 102(b).

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–8 and 10–13 of the '611 patent have been shown to be unpatentable;

FURTHER ORDERED that claim 14 of the '611 patent has not been shown to be unpatentable; and

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 23) is *denied-in-part* and *dismissed-in-part*.

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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