

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JOHNSON CONTROLS, INC.,
Petitioner,

v.

WILDCAT LICENSING WI, LLC,
Patent Owner.

Case IPR2014-00305
Patent 7,062,831 B2

Before JAMES B. ARPIN, CARL M. DEFRANCO, and
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

MITCHELL, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Petitioner, Johnson Controls, Inc., filed a Petition (Paper 3, “Pet.”) requesting an *inter partes* review of claims 22–28 of U.S. Patent No. 7,062,831 B2 (Ex. 1001, “the ’831 patent”). Pursuant to 35 U.S.C. § 314, we instituted this trial on June 23, 2014, as to claims 22–28. Paper 9 (“Dec.”). After institution, Patent Owner filed a Patent Owner Response (Paper 21, “PO Resp.”), and Petitioner filed a Reply to the Patent Owner Response (Paper 27, “Reply”).

Oral argument was held on March 2, 2015, and a transcript (Paper 44, “Tr.”) has been entered into the record.

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). We have jurisdiction under 35 U.S.C. § 6(c).

We are persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 22 and 24–28 are unpatentable as anticipated under 35 U.S.C. § 102(b) by Gass, and claim 23 is unpatentable as obvious under 35 U.S.C. § 103(a) over Gass and Sabatini.

A. *Related Proceedings*

The ’831 patent has been asserted in the following Federal district court case: *Wildcat Licensing WI, LLC v. Johnson Controls, Inc.*, Case No. 3:13-cv-00328 (W.D. Wis.). Pet. 1. Petitioner also filed, concurrently, a petition for *inter partes* review of U.S. Patent No. 6,763,573 B2, the parent for the ’831 patent, which is decided concurrently with this *inter partes* review. See *Johnson Controls, Inc. v. Wildcat Licensing WI, LLC*, Case IPR2014-00304 (PTAB).

B. The '831 Patent

The '831 patent relates to a system for assembling an article with multiple fastening locations that need predetermined screw torque requirements. Ex. 1001, Abstract. To avoid possible failure of such an assembled article, it is known that

[p]roper fastening of a screw may require a predetermined amount of torque to be applied to one or more screws or that the screws be fastened according to a predetermined sequence, or possibly both requirements. It is also necessary that all of the fastening locations be properly subject to a fastening operation and filled with a fastener.

Id. at 1:29–34.

Large-volume assembly operations may use a continuous or intermittent conveyor system that carries an article through multiple assembly stations in which torque reaction arms or drivers are used to assemble an article with fasteners, e.g., screws, according to a predetermined torque value. *Id.* at 1:45–56. “To achieve high volume assembly and to keep conveyor lines short, typically several different screws are fastened by a single worker at a given assembly station along the line” (*id.* at 1:58–60), which can result in intentional and inadvertent mistakes. “[I]f the worker of the torque reaction arm drives the same screw twice[,] he can accidentally provide two torque values for one screw.” *Id.* at 2:3–5. “Even without mistakes, some workers have been known to intentionally bypass or trick existing systems,” for example, by fastening and unfastening the same screw at the same location. *Id.* at 2:14–19.

The '831 patent describes a method to avoid such mistakes. *Id.* at 2:52–67. Figure 1 of the '831 patent is reproduced below.

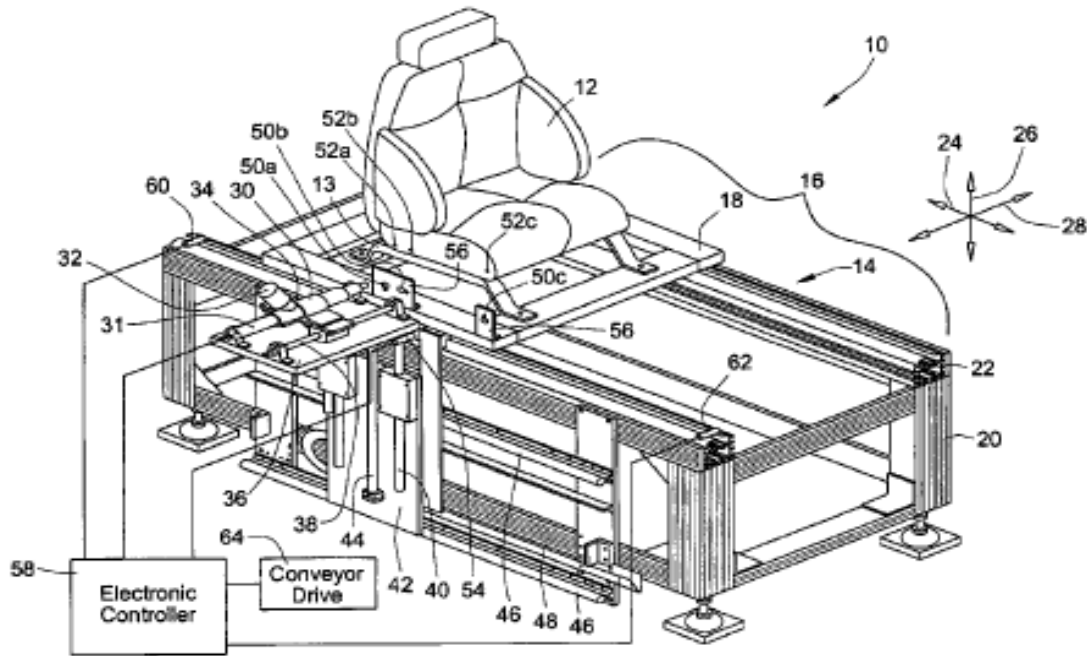


Figure 1 depicts a preferred embodiment of such an assembly system for an automotive seat.

As shown in Figure 1, three targets 50a–c have distinctive characteristics that differentiate one target from another, so that machine vision camera 54, which is a target sensor, may distinguish the targets from each other. *Id.* at 5:39–42, 5:44–46. In making such distinctions, machine vision camera 54 generates an electronic output differentiating between targets 50a–c and communicates this electronic output to electronic controller 58. *Id.* at 5:44–48.

Electronic controller 58 “can utilize the electronic output from the machine vision camera 54 for a variety of purposes such as sounding an alarm, stopping the conveyor 14 and/or collecting data for analysis or quality control purposes.” *Id.* at 5:49–53. The electronic controller “also has a connection to the torque reaction arm or driver 30 for activating the driver 30 when the driver 30 is in a proper fastening position and disabling the

driver 30 when the driver 30 is not in a proper position to fasten at one of the fastening locations 52a–c.” *Id.* at 6:16–20. In order to collect data for analysis or quality control purposes, the electronic controller “also receives feedback from the torque monitor 31 integral with the driver 30 to provide an indication of the driven torque applied at a fastening location.” *Id.* at 6:21–23.

The electronic controller also may have the following feature:

[A] predetermined sequence program requiring a predetermined sequence of fastening among the fastening locations 52a–c. According to this feature, the electronic controller controls the sequence of fastening based upon the target output and provides a sequence output indicating whether the predetermined sequence has been achieved. This may simply entail ensuring that the driver 30 is active only when in front of the correct one of the fastening locations 52a–c as indicated by the respective targets 50a–c.

Id. at 7:50–59.

C. Illustrative Claim

Claim 22 is the sole independent claim of the challenged claims 22–28. Claim 22 of the ’831 patent is illustrative of the claimed subject matter at issue, and is set forth below.

22. A method for assembling an article of assembly, the article of assembly having a plurality of fastening locations including first and second fastening locations in spaced apart relation, comprising:

holding the article of assembly in a predetermined position;

manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence;

sensing the position of the fastening tool;

electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations; and providing a sequence output indicating whether the predetermined sequence has been achieved.

Ex. 1001, 12:13–28.

D. Grounds of Unpatentability

We instituted the instant trial based on the following grounds of unpatentability:

References	Basis	Challenged Claims
Gass ¹	§ 102(b)	22 and 24–28
Gass and Sabatini ²	§ 103(a)	23

II. ANALYSIS

A. Claim Interpretation

In an *inter partes* review, claim terms in an unexpired patent are given their “broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Tech., LLC*, 778 F.3d 1271, 1278–82 (Fed. Cir. 2015). A “heavy presumption” exists that a claim term should be construed in light of its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). A claim term will not be accorded its ordinary meaning, however, “if the patentee acted as his own lexicographer

¹ Gass, PCT Pub. No. WO 00/17719, Mar. 30, 2000 (Ex. 1011). Because this reference is in German, all citations to this reference in this decision will be to the English translation. *See* Ex. 1012 (“Gass”).

² Jeff Sabatini, *Seat Time*, 112 AUTOMOTIVE MANUFACTURING & PRODUCTION 54–55 (Jan. 1, 2000) (Ex. 1013) (“Sabatini”).

and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.” *Id.* “Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Also, we are careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”).

Patent Owner asserts that Petitioner fundamentally misunderstands the invention of claims 22–28 of the ’831 patent in three respects regarding the interpretation of the claims. First, the “fastening locations,” to which the claims refer, are *single openings* into which a single fastener is inserted by an operator; second, the recited “predetermined” sequence requires the sequence to be set prior to the operator beginning work on the workpiece; and, third, the claims require an operator to be alerted to whether a predetermined sequence has been followed or whether a parameter has been applied correctly. PO Resp. 1. We disagree with Patent Owner’s interpretation of the claim terms at issue.

1. “fastening location” – (Claim 22)

Patent Owner asserts in the Patent Owner Response that “[a]t the heart of the parties’ dispute is the question of whether a ‘fastening location’ is a single opening or a group of openings.” PO Resp. 14. Patent Owner construes “fastening location” as “a *single opening* into which a single fastener is inserted by an operator.” *Id.* (quoting Ex. 2009 ¶¶ 39, 59–60)). Patent Owner asserts that the claim language of claim 22 mandates this

conclusion when reciting “manually fastening fasteners into the article of assembly *using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence.*” *Id.* (quoting Ex. 1001, 12:19–22). Patent Owner also points to the Specification and drawings of the ’831 patent that it asserts shows only single fasteners inserted into single openings. PO Resp. 15 (defining fastening locations as 52a–c).

Petitioner asserts that such a definition improperly imports an example from the Specification into the claims. Petitioner states that “Fig. 1’s embodiment may have ‘openings,’ but nothing in the Specification or claims confines fastening locations to ‘single openings’ or even to ‘openings’ (*e.g.*, a fastening location could be a bolt, with no opening, projecting from the article).” Reply 4.

We agree with Petitioner that the broadest reasonable interpretation of “fastening location” is not limited to a single opening, but may encompass a position or site where fastening occurs, when assigned its ordinary meaning. *See* Ex. 1041, 3. Having to make such a distinction between a single opening and a fastening site with more than one opening is negated, however, by the open transitional phrase in claim 22. Because claim 22 uses the open transitional phrase “comprising,” additional fastening operations between the first and second fastening operations are not excluded, as long as the predetermined sequence between the first and second locations is maintained. *See CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007) (“In the patent claim context, the term ‘comprising’ is well understood to mean ‘including but not limited to.’”); Ex. 1001, 12:13–16 (contemplating a “plurality” of fastening locations, but including first and second fastening locations).

Patent Owner's declarant, Dr. L. Cate Brinson, confirms that intervening fastening operations between the first and second fastening locations are contemplated in claim 22 of the '831 patent. Dr. Brinson states

[i]t is important to note that the '831 patent does not describe a 'predetermined sequence' with regard to fastening any one or all of the fasteners in one set (in another predetermined sequence). Rather, only the order within each predetermined sequence is enforced. Therefore, in this example [with two predetermined sequences, (a1, a2, a3) and (b1, b2, b3)], an operator could follow the predetermined sequence of fastening location in either of the following two orders: 1. (a1, a3, a3, b1, b2, b3) or 2. (a1, b1, a2, b2, a3, b3).

Ex. 2009 ¶ 53.

2. *“electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations” – (Claim 22)*

Petitioner identifies the following two limitations of claim 22 involving “a predetermined fastening sequence” or “a predetermined sequence of fastening”: (1) “manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to *a predetermined fastening sequence;*” and (2) “electronically comparing the sensed position of the fastening tool with *a predetermined sequence of fastening* among the first and second fastening locations.” Pet. 14–16 (emphases added). Petitioner asserts that the '831 patent does not include an explicit definition for “sequence,” as used in this claim limitation, and its ordinary meaning is “a following of one thing after another.” Pet. 14–15 (citing Ex. 1010, 3 (American Heritage Dictionary definition)).

In applying this construction of “sequence,” Petitioner proposes that the claim terms, “a predetermined fastening sequence” and “a predetermined

sequence of fastening,” should be construed as “a requirement that a fastener is fastened at one of the first and second fastening locations only after a fastener is fastened at the other of the first and second fastening locations.” *Id.* at 15 (emphasis omitted).

In applying this construction, Petitioner asserts, “manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence” should be construed as “manually fastening fasteners into the article of assembly using a fastening tool according to a requirement that a fastener is fastened at one of the first and second fastening locations only after a fastener is fastened at the other of the first and second fastening locations.” *Id.* (emphasis omitted). Similarly, Petitioner asserts that the step of “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations” should be construed as “electronically comparing the sensed position of the fastening tool with the requirement that a fastener is fastened at one of the first and second fastening locations only after a fastener is fastened at the other of the first and second fastening locations.” *Id.* at 15–16 (emphasis omitted).

Patent Owner addresses the construction of the second of these claim limitations, “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations.” PO Resp. 17–23. Patent Owner asserts that Petitioner’s construction impermissibly reads out the term “predetermined” from the limitation as the fastening can be initiated at either location. PO Resp. 17, 22. Patent Owner proposes that the limitation should be construed

to mean “a controller retrieves a preloaded order of fastening from its memory that an operator is supposed to follow when using the fastening tool to insert a single fastener in each fastening location, and prevents the use of the fastening tool when the preloaded order is not followed.” *Id.* at 18 (citing Ex. 2009 ¶¶ 61–66). Thus, Patent Owner asserts “there must be a sequence accessible from memory *before* an operator begins to use the fastening tool,” which captures the essence of the claimed invention to prevent operator mistakes. *Id.* at 19, 20. Patent Owner concludes that “[t]he claims do *not* cover the insertion of fasteners in various groups of openings, where no attention is paid to the actual sequence the operator follows in inserting fasteners into each individual opening within the groups.” *Id.* at 20.

Petitioner responds that a predetermined program, which is written in advance of use, would either require the fastening at the first location before the second, or vice versa, which is encompassed by its construction. Reply 5–6. Petitioner also asserts that its construction is consistent with the Specification of the ’831 patent, “which instructs that *both* controlling the sequence of fastening based on target output (*i.e.*, location of the tool) and providing an output indicating that a predetermined sequence has been achieved, ‘may simply entail’ ensuring that the driver is active only when in front of the correct fastening locations.” *Id.* at 6. In other words, there is no separate output that prevents the use of the fastening tool when the preloaded order is not followed.

We are persuaded that Petitioner’s construction is the broadest reasonable interpretation of this limitation. Although the preamble of claim 22 describes an article of assembly “having a plurality of fastening

locations,” the limitations of claim 22 are written with reference to “the first and second fastening locations.” *See* Ex. 1001, 12:19–26 (describing manually fastening fasteners using a fastening tool “at the first and second fastening locations” and “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations”). Therefore, it is appropriate to define the claim limitation set forth above in terms of the first and second fastening locations, as Petitioner has done.

Petitioner’s interpretation does not read the term “predetermined” out of the claim, but allows for the possibility that the predetermined program begins with either the first or second fastening location. Petitioner’s construction also is consistent with the description in the Specification that provides that the output indicating whether the predetermined sequence has been achieved “may simply entail ensuring that the driver 30 is active only when in front of the correct one of the fastening locations 52*a–c* as indicated by the respective targets 50*a–c*.” Ex. 1001, 7:49–59. Also, as we have previously concluded, additional fastening operations between the first and second fastening operations are not excluded, as Patent Owner asserts. *See supra* Section I.A.1.

Having considered the parties’ proposed constructions, we conclude that “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations” should be construed under the broadest reasonable interpretation standard as “electronically comparing the sensed position of the fastening tool with the requirement that a fastener is fastened at one of the first and second fastening locations only after a fastener is fastened at the other of the

first and second fastening locations.” *See* Pet. 15–16 (emphasis omitted). By the same token, “manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence” should be construed under the broadest reasonable interpretation standard as “manually fastening fasteners into the article of assembly using a fastening tool according to a requirement that a fastener is fastened at one of the first and second fastening locations only after a fastener is fastened at the other of the first and second fastening locations.” Pet. 15.

3. *“providing a sequence output indicating whether the predetermined sequence has been achieved” – (Claim 22);
“providing an electronic torque output indicating whether at least one predetermined torque value has been reached” – (Claim 26)*

Although Petitioner does not provide a definitive construction for these terms, it does indicate what must be encompassed by the terms when the broadest reasonable interpretation is applied in light of the Specification. Petitioner notes that the Specification states that “the ‘output indicating whether the predetermined sequence has been achieved’ can simply be an output to the fastening tool that controls whether the fastening tool is enabled.” Pet. 17 (quoting Ex. 1001, 7:47–57). Therefore, Petitioner concludes that, although use of the past tense, “has been achieved,” in this claim limitation may require that, “after the fastening operation has been completed . . . , the electronic controller provides an output indicating whether the actual sequence of fastening monitored matches the predetermined sequence,” the construction of the term “cannot properly exclude an ‘output’ that causes the fastening tool to be enabled only when in

front of the correct one of the first and second fastening locations.” Pet. 17 (emphasis omitted).

Patent Owner, however, asserts that its constructions of these limitations are the broadest reasonable interpretation in light of the Specification (PO Resp. 24, 30–31), and are consistent with the plain and ordinary meaning of “indicating whether the predetermined sequence has been achieved” (*id.* at 28). Patent Owner asserts that “providing a sequence output indicating whether the predetermined sequence has been achieved” should be construed to mean “the controller alerts the operator to the improper fastening as soon as the operator attempts to fasten a single fastener in a single opening outside of the preloaded order.” PO Resp. 24 (citing Ex. 2009 ¶¶ 67–71). Patent Owner asserts that “providing an electronic torque output indicating whether at least one predetermined torque value has been reached” should be construed as “a device is used with the fastening tool, under the control of a predetermined sequence program, that alerts the operator whether a torque parameter, as measured by the device, was correctly applied at each fastening location.” *Id.* at 30–31 (citing Ex. 2009 ¶¶ 72–74).

Patent Owner asserts that its interpretation is appropriate because the term “indicating,” as used in the electronic torque output claim phrase, encompasses more than simply “measuring,” but “it alerts the operator whether the operator applied the correct torque value in accordance with the *required* predetermined fastening sequence.” *Id.* at 31. Patent Owner argues that the term “indicating,” which means “to *show*, or make known with a fair degree of certainty,” necessitates “that the operator is alerted to

an improper fastening” (*id.* at 24), or “whether a parameter was correctly applied” (*id.* at 31).

Patent Owner asserts that its interpretation is correct because, if the “sequence output” limitation is interpreted to mean only that the output of the electronic controller causes the fastening tool to be enabled only when in front of the correct fastening location, the “sequence output” limitation is redundant to the “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations” limitation. PO Resp. 25–26. Patent Owner also asserts that requiring an alert to the operator of an attempted improper fastening for the sequence output limitation is consistent with the disclosure that “[t]he electronic target output can be used for electronic control or alarm purposes.” *Id.* at 26 (citing Ex. 1001, 2:66–67). Dr. Brinson, credits the claim language “whether the predetermined sequence has been achieved” with the requirement that “the controller alerts the operator to the improper fastening as soon as the operator attempts to fasten a single fastener in a single opening outside of the preloaded order.” *See* Ex. 2009 ¶¶ 70–71 (cited in PO Resp. 26–27).

Patent Owner relies on the disclosure of the originally-filed claims to bolster its argument that “indicating” means more than mere “measuring.” For instance, Patent Owner makes a claim differentiation-type argument, comparing claim 22’s allegedly broader term “indicating,” the recitation of the original, but unissued, claim 9 that “the electronic controller [outputs] an alarm signal when one of the fixtures has exited the assembly station without proper fastening at the fastening locations.” PO Resp. 32. Patent Owner concludes that “[c]onstruing the ‘torque monitor’ to require that the

indication is given when the correct parameter is applied at the correct location within the predetermined sequence is consistent with the disclosure of original claim 11, which specifies that a ‘predetermined sequence program’ *requires* a sequence of fastening to be followed.” *Id.* at 32–33.

Petitioner counters that requiring an “alert” to the operator “imports a feature that is not even described in the ’831 specification” (Reply 7), while ignoring the use of “indicate” in the ’831 Specification “to refer to an electronic indication from one electronic component to another,” (*id.* at 7 (citing Ex. 1001, 8:14–24, 6:5–13, 8:14–24, 8:37–43)), “and *specifically* does so in references to the torque monitor” (*id.* at 9). Patent Owner allegedly ignores the similar use of this term in original claims 5, 10, and 22. *Id.* Petitioner concludes that:

[T]he patent explicitly states that both a required predetermined sequence . . . and the recited ‘sequence output’ ‘may simply entail ensuring that the driver 30 is active only when in front of the correct one of the fastening locations 52a–c as indicated by the respective targets 50a–c. Ex. 1001, 7:49–59. Thus, the patent contemplates that the ‘output indicating whether the predetermined sequence has been achieved’ can simply be a signal that enables or disables the fastening tool. [Patent Owner’s] construction excludes the only relevant description of the exact phrase from the claim and is improper.

Id. at 8; *see also id.* at 7 (noting Dr. Brinson, Patent Owner’s declarant, acknowledges that the only description of “sequence output” is at Ex. 1001, 7:49–59 described above, and nowhere else in the Specification is there a description of an alarm “directly in conjunction with a predetermined sequence,” citing Ex. 1040, 181:13–183:1 and 183:3–15, respectively).

The distinction between Petitioner’s and Patent Owner’s proposed claim constructions is the requirement for an alert to the operator of

out-of-sequence fastening. The broadest reasonable interpretation of the limitation in light of the Specification, however, is not so limited.

Patent Owner's argument that the plain and ordinary meaning of "indicating" requires an alert to the operator is unavailing. For instance, disabling a fastening tool to prevent an out-of-sequence fastening would show an operator that a predetermined sequence is not being followed. *See* Reply 15 (also describing Gass ¶ 93 and Fig. 10 show visual display of the process operation with time that shows movement of the process tool); Tr. 19:17–20:16; *but see id.* at 38:1–14. The Specification of the '831 also does not support the notion that "indicating" requires an alert to the operator.

An alarm is mentioned as an option in the Specification, but not in specific reference to alerting an operator as to whether a predetermined sequence has been achieved, or whether at least one predetermined torque value has been reached, as Patent Owner contends. *See* Ex. 1001, 2:61–62 ("The electronic target output can be used for electronic control or alarm purposes."), 5:48–53 (describing electronic output can be used for sounding an alarm); *see also id.* at 14:1–15 (describing limitation of claim 18, similar to original claim 9, in which electronic controller outputs an alarm signal when a fixture has left an assembly station without proper fastening of fasteners at the fastening locations); Tr. 20:17–22:11. Dr. Brinson admits that nowhere in the figures of the '573 patent is an alert to the operator illustrated. *See* Ex. 1040, 128:3–129:13; *see also id.* at 137:5–12 (stating generalization that an output can provide an alarm), 139:1–10 (stating that, from use of "indicate," a signal or alarm-type information can be generalized to inform the operator whether fastening parameters are applied correctly), 139:21–140:1, 141:8–17 (stating mere presence of an operator requires an

alert); 144:1–17 (stating alert to operator required because “the entire purpose of the patent is to ensure that things – that the bolts are fastened at the right place in the right sequence to the right torque values, and in order to accomplish that, the operator needs to know immediately upon doing something incorrect that it’s incorrect . . .”).

We are persuaded by Petitioner that the broadest reasonable interpretation for the claim limitation “providing a sequence output indicating whether the predetermined sequence has been achieved,” when read in light of the Specification, may include “an ‘output’ that causes the fastening tool to be enabled only when in front of the correct one of the first and second fastening locations.” *See* Pet. 17; Ex. 1001, 7:52–57; Ex. 1002 ¶¶ 31–33; Tr. 19:17–20:16.

We also determine that the limitation of claim 26, “providing an electronic torque output indicating whether at least one predetermined torque value has been reached,” does not require an alert to the operator as to whether the torque applied to a fastener is correct. As shown by Petitioner, such a construction is supported by the Specification in the description of fastening operations, and does not read an extraneous limitation from the Specification into the claim, as does Patent Owner’s proposed construction. *See Van Geuns*, 988 F.2d at 1184 (“[L]imitations are not to be read into the claims from the specification.”); *see also Bayer AG v. Biovail Corp.*, 279 F.3d 1340, 1348 (Fed. Cir. 2002) (“While a court may look to the specification and prosecution history to interpret what a patentee meant by a word or phrase in a claim, extraneous limitations cannot be read into the claims from the specification or prosecution history.”).

4. *Remaining Claim Terms*

Petitioner proposes a claim construction for “disabling the fastening tool when not at a fastening location,” as recited in claim 25. Pet. 19. We do not need to construe this claim limitation to determine whether Petitioner has shown by a preponderance of the evidence that claim 25 is unpatentable. Therefore, we do not construe expressly this limitation here, but give this limitation its broadest reasonable interpretation according to its plain and ordinary meaning.

B. The Grounds

*1. Anticipation of Claims 22 and 24–28
Based on Gass*

Petitioner challenges claims 22 and 24–28 as rendered unpatentable under 35 U.S.C. § 102(b) as anticipated by Gass. Pet. 21–36. In support of the asserted ground of unpatentability, Petitioner sets forth teachings of Gass, provides detailed claim charts, and cites to Mr. Lawrence E. Osentoski, Jr.’s Declarations, explaining how each claim limitation is disclosed in Gass.

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsisimilis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

“A reference anticipates a claim if it discloses the claimed invention such that a skilled artisan could take its teachings in combination with his

own knowledge of the particular art and be in possession of the invention.”
In re Graves, 69 F.3d 1147, 1152 (Fed. Cir. 1995). This means prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *Paulsen*, 30 F.3d at 1480. Moreover, “it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). Upon review of Petitioner’s contentions and supporting evidence, as well as the Patent Owner Response and supporting evidence, we determine that Petitioner has demonstrated by a preponderance of the evidence that Gass anticipates claims 22 and 24–28.

a. *Gass*

Gass describes a system and tool for processing a workpiece that has a plurality of process, e.g., bolting, sites. Ex. 1012 ¶¶ 1, 5, Figs. 8a, 8b. This system, which ensures that an operator actually undertakes processing at programmed process sites on the workpiece, has

a recognizing means . . . which identifies the location, i.e. the position of the process tool in the process station, the location, i.e. position of the workpiece in the process station and therefrom it is able to determine the location of the process tool relative to the process site in each case. Once the location of the process tool and the location of the workpiece ha[ve] been recognized then – since the process sites on the workpiece are always programmed (for example in a memory) – the system is always able to keep track of whether the process tool has been guided to the correct process site, also in the correct sequence, where several process sites are concerned, so that here . . . the system is able to assign the process tool not, for example, to each zone, as in the prior art, but to the process site itself. In

other words, recognizing the process site is implemented implicitly via locationing.

Id. ¶ 15.

Further defining the system, Gass refers to Figure 6, set forth below.

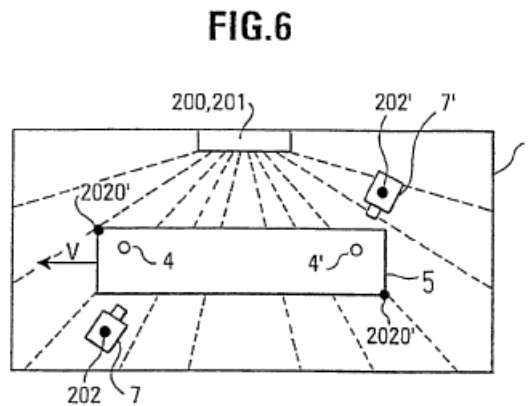


Figure 6 depicts that workpiece 5 is arranged in predefined process station 1, where processing at a plurality of process sites 4, 4' takes place with programmed process parameters by process tools 7, 7'. Ex. 1012 ¶ 64. As Gass explains,

[a] recognizing means 200 is provided to identify the location and/or angular orientation of the process tool 7, 7' in the process station 1, the location of workpiece 7 in the process station 1 and to recognize therefrom the location of the process tool 7 relative to each process site 4.

Id.

With reference to Figure 5 (not reproduced), Gass further describes the system as follows.

Once a programmed location of the workpiece (and/or a specific process site on the workpiece) relative to the tool has been recognized, the recognizing means 200 outputs the identification signal ES to the process parameter programming means 8 which . . . reads the corresponding design values from

the memory 9 for outputting to each process tool 7, 7' and to the comparator means 10. During processing, the comparator means 10 compares *the actual values to the design values* and controls the process tool 7

Id. (emphases added). When the actual and design values agree, comparator means 10 stops process tool 7, “so that in processing[,] the actual parameter is brought into agreement with the design parameter.” *Id.* ¶¶ 23, 43. Gass states that process tool 7 may be a screw driver or a nut runner, and the programmed process parameters may be bolting parameters, such as torque or a torsion angle of the screw driver or nut runner. *Id.* ¶ 90; *see also id.* ¶ 23 (stating process tool may be a screw driver or nut runner).

b. Analysis

Petitioner provides detailed contentions demonstrating how Gass discloses each and every element of the challenged claims. Pet. 21–36; Ex. 1002 ¶¶ 36–48. Patent Owner asserts that Gass does not teach “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations,” because Gass teaches that the operator selects an initial process site on which to work, although the claim limitation requires a *preloaded* order of fastening. PO Resp. 38–40. Further, Patent Owner asserts that Gass also fails to teach a predetermined sequence of “fastening locations,” because Gass only teaches fastening groups of bolts at a first and second process site with no regard to the order of the fastening of the bolts or individual fastening locations within each processing site. *Id.* at 42–43. Patent Owner concludes:

In other words, at most, Gass teaches a sequence requiring that once the operator selects an initial process site, a *predetermined number* of processing operations must occur at the operator

selected site before the operator can process the other processing site. But within those two process sites, Gass teaches that the operator is free to choose the order in which individual fasteners are fastened

Id. at 42–43 (citation omitted).

Thus, Patent Owner contends that Gass fails to teach the limitation, “providing a sequence output indicating whether the predetermined sequence has been achieved” because Gass does not teach *alerting* the operator whether a predetermined sequence has been achieved. *Id.* at 45–48.

Patent Owner posits:

In fact, Petitioner has not offered any evidence that the Gass system either (1) recognizes the achievement of a sequence or (2) alerts the operator of the achievement of a sequence. Instead, Petitioner relies on the enabling means that enables the process tool at a second programmed process site only after the recognizing means has already implemented *a predefined number of process operations* in the region of a previous process site to show the “output” element is met.

Id. at 47.

Concerning the additional limitations of dependent claim 26, Patent Owner asserts that no cited reference teaches “providing an electronic torque output indicating whether at least one predetermined torque value has been reached” or “monitoring torque under the control of a predetermined sequence program” because Gass does not teach alerting the operator whether a parameter was applied correctly at each fastening location. *Id.* at 50–53. Further, Patent Owner asserts that the comparator means of Gass “measures a parameter” or that the torque monitor is under the control of a predetermined sequence program that is followed between successive single fasteners being inserted into single fastening locations. *Id.*.

Petitioner counters that Patent Owner offers no argument that the claims at issue are patentable under the constructions set forth in the Decision on Institution, but relies on more narrow constructions that improperly import limitations from the Specification of the '831 patent into the claims. Reply 1. For instance, Patent Owner's argument that the process sites in Gass are not fastening locations is based on an unduly narrow construction that locations are limited to a single opening. *Id.* at 9. We agree, as discussed above, that such a construction is too narrow. *See supra* Section II.A.1. Also, additional fastening operations between the first and second fastening operations are not excluded, as Patent Owner asserts. *Id.* What is recited by the claims is the sequence of manually fastening fasteners between a first and second location. *See* Ex. 1001, 12:13–51 (Claims 22–28). We are persuaded that Gass teaches this limitation.

For instance, Gass teaches that its system is always able to keep track of whether the process tool has been guided to the correct process site and in the correct sequence and can determine the absolute location of the bolting sites in X, Y, Z coordinates. *See* Ex. 1012 ¶¶ 15, 73–76, 79; Ex. 1042 ¶ 5. Gass also teaches that an enabling means can enable process tool 7 at programmed process site 4", only when the recognizing means, i.e., the image processing means, has implemented a predefined number of process operations in the region of previous process sites 4, 4' to ensure that no process site is missed. Ex. 1012 ¶ 87.

We agree with Petitioner that any "bolting site" in process site 4 has a different, distinct location as compared to any bolting site in another process site 4', which bolting sites would meet the first and second fastening locations limitation, even under Patent Owner's construction. *See* Reply 7–

8. We also are persuaded that the figures in Gass show single openings in process sites 4, 4', and 4'', as in the '831 patent, and would meet Patent Owner's interpretation of fastening locations. *See* Ex. 1012, Figs. 6, 8a, 8b, and 10.

Petitioner asserts that Gass also teaches “electronically comparing the sensed position of the fastening tool with a predetermined sequence of fastening among the first and second fastening locations.” Reply 10–14. Petitioner relies on the express teaching of Gass requiring a correct sequence among process sites, and the statement that the tool is only enabled at 4'' after the tool has already implemented a predefined number of process operations in process sites 4, and 4'. *Id.* at 12 (citing Ex. 1012 ¶¶ 15, 87; Ex. 1042 ¶¶ 10–18). We agree with Petitioner that “it is evident that Gass' ‘counter’ simply serves as a memory indicating that a previous site 4,4' has been completed properly, from which the controller can ensure that a predetermined sequence (*i.e.* site 4'' only after completion of 4, 4') is being followed.” *Id.*

Patent Owner's assertion that Gass teaches a user selected initiation site, which is antithetical to a *predetermined* sequence, also is misplaced. We are persuaded by Petitioner that paragraph 86 of Gass, on which Patent Owner relies to show user selection, does not show user selection of the initiation site, but describes sequential processing of process sites 4 and 4'. *See* Ex. 1012 ¶ 86; Reply 14. We also agree with Petitioner that an important aspect of the claims to our analysis is a sequence among first and second locations. Gass's statement that there is a correct sequence among process sites, and that processing at a second site 4'' can only be done after

completion of at least one prior site, such as 4 or 4', teaches the required "predetermined sequence."

We also agree that Gass teaches "providing a sequence output indicating whether the predetermined sequence has been achieved" according to our construction of the claim limitation. Gass states that

An enabling means can enable, for example, the process tool 7 at a programmed process site 4" only when the recognizing means, i.e., the image processing means, has already implemented a predefined number of process operations in the region of a previous process site 4, 4' to thus ensure that no process site is missed.

Ex. 1012 ¶ 87.

We agree also with Petitioner that Gass teaches an alert to the operator, which would meet this limitation even under Patent Owner's interpretation. For instance, Gass describes using bar codes or luminous markings, so that the recognizing means could provide an on-line display of the process operation with time, such as shown in Figure 10. *Id.* ¶ 93. Also, the disabling of the process tool, when the tool is at a wrong fastening location, would alert the operator to an improper fastening, meeting this limitation even under Patent Owner's claim construction. *See* Tr. 19:17–20:16; *see also* Ex. 1002 ¶ 41 ("[T]his limitation should be construed to at least encompass a method in which the sequence output is an output that causes the fastening tool to be enabled only when in front of the correct one of the first and second fastening locations ([Ex. 1001,] col. 7, lines 49–59).").

As set forth in Petitioner's discussion of this ground and in its associated claim charts, Petitioner explains how Gass discloses the remaining limitations of claims 22 and 24-28. *See* Pet. 21–36. For example,

as to independent claim 22, Gass teaches the following limitations: (1) holding an article in a predetermined position; (2) manually fastening fasteners into the article of assembly using a fastening tool at the first and second fastening locations according to a predetermined fastening sequence; and (3) sensing the position of the fastening tool. *See, e.g.*, Ex. 1012 ¶ 64 (explaining “workpiece 5 is arranged in predefined process station 1 and is processed at a plurality of process sites 4, 4’ with programmed process parameters by at least one process tool 7, 7’”); *id.* ¶ 15 (explaining disclosed system is able to determine the location of the process tool relative to the workpiece and thus the process sites, which are programmed in a memory, to be able to determine whether the process tool has been guided to the correct process site, also in the correct sequence); *id.* ¶ 87 (teaching enabling means to enable the process tool only when the recognizing means has implemented predefined number of operations at previous process sites); *id.* ¶ 93 (describing on-line display of process operation with time).

Finally, Gass teaches an additional limitation in claim 26, challenged specifically by Patent Owner, “providing an electronic torque output indicating whether at least one predetermined torque value has been reached.” As we have found, this limitation does not require an alert to the operator. *See supra* Section II.A.3. The limitation is met by comparator 10 that compares actual values to design values stored in memory (Ex. 1012 ¶ 64), and “means for sensing actual process parameters and a means for comparing the sensed actual parameters to the design parameters for controlling the process tool so that in processing the actual parameter is brought into agreement with the design parameter” (*id.* ¶ 24).

We are persuaded that Petitioner has shown by a preponderance of the evidence that claims 22 and 24–28 are anticipated by Gass.

2. *Obviousness of Claim 23 Based on Gass and Sabatini*

Petitioner challenges claim 23 as rendered obvious by Gass and Sabatini. A patent claim is obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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 to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A person of ordinary skill in the art is defined as “a hypothetical person who is presumed to know the relevant prior art.” *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir 1995) (citing *Custom Accessories, Inc. v. Jeffrey-*

³ Patent Owner asserts Petitioner’s commercial success from allegedly using the methods recited in claims 22–28 of the ’831 patent establishes secondary considerations against a determination of obviousness. PO Resp. 55–56. Patent Owner, however, cites to no evidence (or admission by Petitioner) that Petitioner uses (e.g., infringes) the recited methods in the challenged claims and offers mere attorney argument concerning secondary considerations, including the existence of any “nexus” between Petitioner’s activities and the recited methods. *Id.* at 56. Such argument, unsupported by sufficient evidence, is unpersuasive. *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965).

Allan Indus, Inc., 807 F.2d 955, 962 (Fed. Cir. 1986). Some of the factors to consider in determining the level of ordinary skill may include: (1) type of problems encountered in the art; (2) prior art solutions to those problems; (3) rapidity with which innovations are made; (4) sophistication of the technology; and (5) educational level of active workers in the field. *Id.* Not every factor need be present, and one or more factors may predominate the determination. *Custom Accessories, Inc. v. Jeffrey-Allan Indus, Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986).

Mr. Osentoski states that one of skill in the art in the relevant time period of the invention would have had either (1) a Bachelor degree in Electrical Engineering, Industrial Engineering, Manufacturing Engineering, or a related field, and about two years of practical experience in industry; or (2) ten years of practical experience in industry. Mr. Osentoski further clarifies that such experience for one of skill in the art is approximate, “and a higher level of education or skill might make up for less experience, and vice-versa.” Ex. 1002 ¶ 11. Similarly, Dr. Brinson, Patent Owner’s declarant, contends that “a person having ordinary skill in the art relevant to the ’831 patent would likely have had at least a Bachelor of Science degree in Mechanical Engineering or a related field, and at least two (2) years of professional or practical experience in the industry, or comparable combination of education and experience.” Ex. 2009 ¶ 22.

We are persuaded by the parties that, based on the factors set forth above, a person of ordinary skill in the art would have had a Bachelor of Science degree in Mechanical Engineering or a related field, and at least two (2) years of professional or practical experience in the industry, or comparable combination of education and experience, such as Electrical

Engineering, Industrial Engineering, Manufacturing Engineering, and at least two (2) years of professional or practical experience in the industry, or comparable combination of education and experience, such as ten years of practical experience in industry.

Claim 23 depends from claim 22 and adds the limitation “wherein the article of assembly comprises a vehicle seat.” Ex. 1001, 12:29–30.

Petitioner acknowledges that Gass does not teach using its method of assembly on a vehicle seat. Pet. 36.

Sabatini teaches assembling automobile seats on an assembly line. Ex. 1013, 54–55. Sabatini also teaches an output indicating to an operator whether operations have been performed correctly. *See id.* at 55 (“Operators use torque-sensing guns with visual indicators. If fasteners are not run to the correct torque setting, a light above the line comes on and the line shuts down until an operator corrects the problem.”).

Relying on testimony from its declarant, Petitioner concludes that “[o]ne of ordinary skill in the art would have recognized that applying the method of Gass to vehicle seats would have yielded the predictable and improved result of facilitating the assembly of a vehicle seat and lowering defects by allowing the sequence of fasteners to be controlled when assembling the vehicle seat.” Pet. 37 (citing Ex. 1002 ¶ 49).

Patent Owner does not address directly the teachings of Sabatini or its combination with Gass. Patent Owner does argue, however, that Mr. Osentoski’s testimony is entitled to little or no weight because it allegedly is unsupported by underlying facts and data and internally inconsistent in the definition of “fastening location.” PO Resp. 53–55. Mr. Osentoski supports his testimony by reference to the prior art and to his

knowledge of the art. Also, we do not find that Mr. Osentoski's reference to "fastening locations" to refer to process sites is inconsistent with his reference to fastening locations shown in the '831 patent. *See* PO Resp. 54. Therefore, we do not find Mr. Osentoski's testimony internally inconsistent or unsupported.

We are persuaded by Petitioner's articulated reasoning, which is supported by rational underpinnings. *See KSR*, 550 U.S. at 416 (holding that "when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, [here, one workpiece for another,] the combination must do more than yield a predictable result" to render the claim nonobvious). Therefore, we conclude that Petitioner has shown by a preponderance of the evidence that the subject matter of challenged claim 23 would have been obvious over Gass and Sabatini.

C. Motions to Exclude Evidence

Both parties filed Motions to Exclude Evidence. Papers 32 ("PO Mot.") and 34 ("Pet. Mot."). For the reasons set forth below, both Petitioner's and Patent Owner's Motions to Exclude Evidence are *denied*.

i. Petitioner's Motion

Petitioner moves to exclude paragraphs 18–36; 38, line 1; and 39–101 of Exhibit 2009, Dr. Brinson's Declaration. Pet. Mot. 1. As the movant, Petitioner has the burden to establish that it is entitled to the requested relief. 37 C.F.R. § 42.20.

Petitioner argues that Dr. Brinson has expertise in the manufacture of engineering materials and in the mechanics, such as deformation, stress, and strain, of materials, but she is not an expert in control systems used in

assembling manufactured items. Pet. Mot. 3. Petitioner concludes that “[w]ithout having practical experience in the pertinent field—control systems for avoiding operator mistakes during manufacturing—Dr. Brinson cannot properly provide testimony as to how the patent or the prior art would be understood by a person of ordinary skill in the art of such systems at the time of the invention.” *Id.* at 8.

Patent Owner asserts that Dr. Brinson has 25 years of training, education, and experience in fields related to the invention such as manufacturing, including assembly, mechanics, and stress analysis. Paper 37 (“PO Opp.”) 1; *see* Ex. 2009, App. A (Curriculum Vitae of Dr. Brinson); Ex. 1105 (Supplemental Declaration of Dr. Brinson). Patent Owner also states that Dr. Brinson has 30 years of experience in programming. *Id.* at 2 (citing Ex. 1105 ¶ 4). Patent Owner concludes that Dr. Brinson is qualified to testify in the relevant field of art that involves “a system for assembling an article of assembly.” PO Opp. 3–6 (citing claims 22–28).

Petitioner’s declarant, Mr. Osentoski, opined that the level of skill in the art “would have had any one of the following: (i) a Bachelor degree in Electrical Engineering, Industrial Engineering, Manufacturing Engineering, or a related field, and about 2 years of practical experience in industry; (ii) 10 years of practical experience in industry.” Ex. 1002 ¶ 11. Mr. Osentoski qualified this assessment, stating “[t]hese descriptions are approximate, and a higher level of education or skill might make up for less experience, and vice-versa.” *Id.* Dr. Brinson agreed with Mr. Osentoski’s assessment of one of skill in the art stating such a person “would likely have had at least a Bachelor of Science degree in Mechanical Engineering or a related field, and at least two (2) years of professional or practical experience in the industry,

or comparable combination of education and experience.” Ex. 2009 ¶ 22.

Petitioner’s requirement that a declarant have experience in the art of “the design of control systems for avoiding operator mistakes during manufacturing,” is inappropriately narrow in light of the level of skill in the art proposed by the declarants. We agree with Patent Owner that Dr. Brinson has the requisite “‘knowledge, skill, experience, training, and education’ of a ‘specialized’ nature that is likely to ‘assist the trier of fact to understand the evidence or to determine’” patentability of claims involving assembly systems. *See SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010) (applying Fed. R. Evid. 702); *see also* Ex. 1001, 12:13–51 (claims 22–28); Ex. 2009 ¶¶ 5–16, App. A (describing Dr. Brinson’s extensive background mechanical engineering); Ex. 1105. Therefore, Petitioner’s Motion to Exclude Evidence is *denied*.

ii. *Patent Owner’s Motion*

Patent Owner moves to exclude Petitioner’s second Declaration of Mr. Osentoski submitted with Petitioner’s Reply and a dictionary definition also submitted with Petitioner’s Reply. Patent Owner asserts that Mr. Osentoski’s second Declaration improperly raises new issues, and that the dictionary definition is improper new evidence. PO Mot. 1. As the movant here, Patent Owner has the burden of proof to establish that it is entitled to the requested relief. 37 C.F.R. § 42.20.

Patent Owner asserts that Petitioner’s offer of a definition for “predetermined” to mean “beforehand,” and an offer of a dictionary definition of the term, “location,” is relied upon “for the sole purpose of supplementing its initial claim construction positions, not to rebut the arguments and evidence raised in [Patent Owner’s] Response.” PO Mot. 4.

Petitioner asserts that it addresses the phrase “predetermined sequence” separately from the clause containing the phrase, for which it offered a construction in its Petition, “in direct reply to [Patent Owner’s] contention that [Petitioner’s] construction does not give effect to ‘predetermined.’” Paper 38, 2–3. Petitioner also states that it addresses the term “fastening location” because Patent Owner “disputes that this term should be accorded its broadest reasonable interpretation, as understood by one of ordinary skill in the art and consistent with the disclosure, and instead has offered an unduly narrow construction.” *Id.* at 6.

Patent Owner is correct that “[a] reply may only respond to arguments raised in the corresponding opposition or patent owner response.” 37 C.F.R. § 42.23(b). We are persuaded by Petitioner, however, that its proffered evidence and arguments regarding “predetermined sequence” and “location” properly responded to arguments made by Patent Owner in its Patent Owner Response regarding these terms. *See* PO Resp. 13–23. Patent Owner’s Motion to Exclude Evidence is *denied*.

III. CONCLUSION

Petitioner has shown by a preponderance of the evidence that claims 22 and 24–28 of the ’831 patent are unpatentable under 35 U.S.C. § 102(b) over Gass, and claim 23 of the ’831 patent is unpatentable under 35 U.S.C. § 103(a) over Gass and Sabatini.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 22–28 are *unpatentable*;

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FURTHER ORDERED that Petitioner's Motion to Exclude Evidence is *denied*;

FURTHER ORDERED that Patent Owner's Motion to Exclude Evidence is *denied*; and

FURTHER ORDERED that, because 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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