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Paper 15
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROBERT BOSCH TOOL CORPORATION,
Petitioner,

v.

SD3, LLC,
Patent Owner.

Case IPR2016-01751
Patent 7,600,455 B2

Before HYUN J. JUNG, SCOTT A. DANIELS, and ROBERT L. KINDER, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Robert Bosch Tool Corporation ("Petitioner") filed a Petition pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1–3 and 5–21 of U.S. Patent No. 7,600,455 B2, issued on October 13, 2009 (Ex. 1001, "the '455 patent"). Paper 1 ("Pet."). SD3, LLC ("Patent Owner") filed a Preliminary Response. Paper 9 ("Prelim. Resp."). On January 9, 2017, we issued an Order requesting reply briefing by the Petitioner on the issue of "whether the time bar of 35 U.S.C. § 315(b) applies to a complaint filed with the ITC." Paper 11. Petitioner filed a Reply to the Preliminary Response on January 27, 2017. Paper 12 ("Reply"). We have jurisdiction under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a).

To institute an *inter partes* review, we must determine that the information presented in the Petition shows "a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). Having considered both the Petition and the Preliminary Response, we are not persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 1–3 and 5–21 of the '455 patent. Accordingly, we do not institute an *inter partes* review.

I. BACKGROUND

A. The '455 Patent (Ex. 1001)

The '455 patent is titled "Logic Control for Fast-Acting Safety System." Ex. 1001, (54). The Specification of the '455 patent describes woodworking machines, which "include a detection system adapted to detect a dangerous condition between the cutting tool and a person, and a reaction system adapted to perform a specified action upon detection of the

dangerous condition." *Id.* at Abstract. The '455 patent describes that "[t]he machines further include a control system adapted to test the operability of at least a portion of the detection system and/or the reaction system," and "to disable the motor if the tested portion is inoperable." *Id.*

Referring to Figure 1 of the '455 patent, depicted below, woodworking machine 10 is equipped with safety system 18 that includes detection subsystem 22, reaction subsystem 24, and control subsystem 26. *Id*. at 3:59–4:2; Fig. 1.

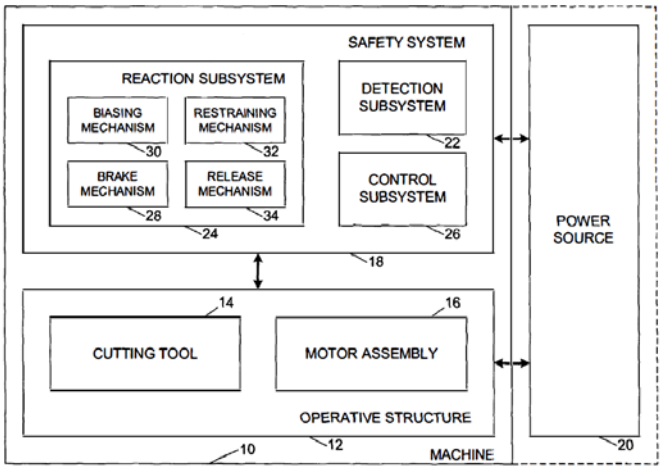

Fig. 1

Figure 1 of the '455 patent represents "a schematic block diagram of a machine with a fast-acting safety system according to the present invention." *Id*. at 2:44–45. The detection subsystem is configured to detect dangerous, or triggering, conditions such as when a hand is dangerously close to, or in contact with, a portion of cutting tool 14. *Id*. at 4:3–16. In one embodiment, detection subsystem 22 is adapted to detect the dangerous condition of the user contacting a blade. *Id*. at 5:12–33. In such an embodiment, detection subsystem 22 may use a capacitive sensor arrangement. *Id*. The sensor includes contact detection plates 44 and 46 that are capacitively coupled onto blade 40. *Id*., Fig. 2. Detection subsystem 22 transmits a signal to

control subsystem 26 when contact between the user and the blade is detected. *Id*.

In response to the detection subsystem determining that a dangerous condition exists, the reaction subsystem performs one or more predetermined actions to mitigate injury. *Id*. at 4:17–53. In one embodiment, the reaction subsystem includes a brake mechanism that stops rotation of the saw blade. *Id*. at 5:57–6:45. Referring to Figure 2, brake mechanism 28 includes spring 66 that is released to urge brake pawl 60 into engagement with the spinning saw blade. *Id.*

Fig. 2

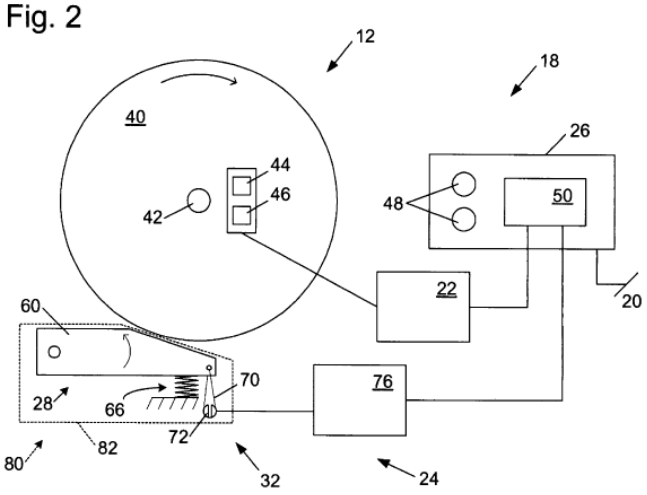

Figure 2 illustrates a cutting tool such as saw blade 40 and brake mechanism 28 having pawl 60 for engaging and stopping the blade when a dangerous condition is detected. *Id.* at 5:4–33. Within this embodiment, the pawl is restrained against the stored energy of the spring by a single-use fusible member or fuse wire 70. *Id.* When a dangerous condition is detected, a capacitor discharges a current through fusible member 70, causing it to melt and release the spring. *Id.* The spring forces the brake pawl into the saw blade to stop its rotation within milliseconds of the detection system

detecting a dangerous condition. *Id.* In other embodiments, the reaction system retracts the saw blade in addition to or instead of braking the blade's rotation. *Id.* at 14:51–18:61.

Control subsystem 26 includes logic controller 50 that receives a contact detection signal from detection subsystem 22 and provides output signals to the reaction subsystem 24. *Id*. at 5:34–56. The control subsystem also performs self-testing on portions of the reaction subsystem. *Id*. at 13:8–14:17. One embodiment includes a capacitive plate placed in close proximity to the saw blade, and logic that analyzes a signal representing the spacing between the blade and the plate. *Id*. at 9:50–10:14, 14:65–16:25, Fig. 3, step 902. If the signal indicates that the spacing is too close or too far apart, then the logic disables the motor or prevents it from starting. *Id*.

In another embodiment, the logic controller analyzes the integrity of the fusible member that is used to restrain the compressed spring and brake pawl. *Id*. at 14:8–17, 14:58–15:34; Fig. 3, step 905. The integrity self-test ensures that the fusible member is present and capable of receiving current in order to release the spring and brake pawl when necessary. *Id*. If the logic controller determines that the fuse wire is shorted or disconnected, it disables the motor or prevents it from starting until the fuse wire is replaced. *Id*. at Fig. 4A, step 915; Fig. 4C, steps 928 and 929. The logic controller analyzes the capacitor that is used to store and discharge current through the fuse wire. *Id*. at 13:39–14:7, 14:39–57, Fig. 3, steps 906. If the logic controller determines that the capacitor is not storing sufficient charge to melt the fuse wire, or not discharging current at a sufficient rate, then it disables the motor or prevents it from starting. *Id*. at Fig. 4C, steps 928 and 929.

B. Illustrative Claim

Claim 1, reproduced below, is illustrative of the claims at issue:

> 1. A woodworking machine comprising:
>
> a cutting tool for cutting workpieces;
>
> a motor configured to drive the cutting tool;
>
> a detection system configured to detect a dangerous condition between a person and the cutting tool;
>
> a reaction system controllable to disable the cutting tool if the dangerous condition is detected; and
>
> a control system configured to determine the operability of the reaction system without having to operate the reaction system and to disable the motor if the reaction system is inoperable.

Ex. 1001, 17:10–20. Independent claims 14, 19, and 21 each require a control, or self-test, system to determine the operability of "the reaction system without having to operate the reaction system." *Id.* at 18:16–19, 18:46–49, 18:60–63.

C. Related Proceedings

According to the parties, the '455 patent has been asserted by Patent Owner against Petitioner in *Certain Table Saws Incorporating Active Injury Mitigation Technology and Components Thereof*, Inv. No. 337-TA-965, pending before the U.S. International Trade Commission ("ITC Investigation") and *SawStop, LLC v. Robert Bosch Tool Corp.*, Case No. 3:15-cv-01320 (D. Or.). Pet. 1; Paper 8, 2.

Petitioner has also filed the following petitions challenging the patentability of certain claims within related patents:

1. IPR2016-01750 (U.S. Patent No. 7,225,712);
2. IPR2016-01753 (U.S. Patent No. 7,895,927);

3. IPR2016-01754 (U.S. Patent No. 8,011,279); and
4. IPR2016-01755 (U.S. Patent No. 8,191,450).

D. References

Petitioner relies on the following references:[1]

U.S. Patent No. 3,785,230, filed Nov. 8, 1972, issued Jan. 15, 1974 (Ex. 1005, "Lokey"); WO 97/12174, filed Sept. 25, 1996, published Apr. 3, 1997 (Ex. 1004, "Sørensen"); and, DE 196 09 771, filed Mar. 13, 1996, published Apr. 6, 1998 (Exs. 1007 and 1008,[2] "Nieberle"). Pet. 3.

E. Grounds Asserted

Petitioner challenges the '455 patent on the following grounds (Pet. 8–9):

References	Basis	Claims Challenged
Sørensen, Lokey, in view of the ordinary knowledge of one of skill in the art	§ 103(a)[3]	1–3, 5–12, 14–17, and 19–21
Sørensen, Nieberle, in view of the ordinary knowledge of one of skill in the art	§ 103(a)	1–3 and 5–20

[1] Petitioner cites numerous references for background information but does not affirmatively rely on any of these references as a ground for invalidity. *See* Pet. 3, 14–28. Accordingly, we treat these exhibits as documenting the knowledge that skilled artisans would employ in reviewing the prior art. *See Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015).

[2] Exhibit 1007 is the original German reference. Exhibit 1008 is the certified translation, which is cited hereafter.

[3] The relevant sections of the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284 (Sept. 16, 2011), took effect on March 16, 2013. Because the application from which the '455 patent issued was filed before that date, our citations to Title 35 are to its pre-AIA version.

F. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (U.S. June 20, 2016) (upholding the use of the broadest reasonable interpretation standard as the claim construction standard to be applied in an *inter partes* review proceeding). Consistent with the rule of broadest reasonable interpretation, claim terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

A petition for an *inter partes* review must identify how each challenged claim is to be construed. 37 C.F.R. § 42.104(b)(3). As part of that requirement, a petitioner must "identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function" of any means-or step-plus-function limitation. *Id.*; *see also* 35 U.S.C. § 112 ¶ 6.[4] Below, we address three limitations we determine to be in means-plus-function format. We also determine no other claim limitations need to be construed for purposes this Decision.

"Reaction System"

Claim 1 recites "a reaction system controllable to disable the cutting

[4] Section 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA") re-designated 35 U.S.C. § 112 ¶ 6 as 35 U.S.C. § 112(f). Because the '455 patent has a filing date prior to September 16, 2012, the effective date of § 4(c) of the AIA, we refer to the pre-AIA version of 35 U.S.C. § 112.

tool if the dangerous condition is detected." Ex. 1001, 17:15–16 (claim 1). Claims 14 and 19 recite similar "reaction system" limitations, but claim 19 recites a different function. *Id.* at 18:44–45 ("a reaction system adapted to perform a specified action upon detection of the dangerous condition"). Petitioner questions whether the "reaction system" limitation of claims 1, 14, and 19 should be construed in means-plus-function format. Pet. 6–7.

Petitioner first contends that the "reaction system" limitation should not be construed in means-plus-function format because the limitation does not use the phrase "means for" to invoke the presumption that § 112 ¶ 6 should apply. Pet. 7–8. Petitioner, however, also provides a proposed construction of the limitation pursuant to § 112 ¶ 6 in the event that we determine § 112 ¶ 6 should apply. *Id.* at 10–13. Petitioner contends that the identified functions for "reaction system" are "disable the cutting tool" for claims 1–18 and "perform a predetermined action" for claims 19–20. Petitioner identifies "a brake pawl actuated by a spring and fuse wire or by a DC solenoid or by a pressurized air or gas cylinder or by an explosive," as performing the recited function. *Id.* at 12–13. Patent Owner does not address whether the "reaction system" limitation should be construed in means-plus-function format. Prelim. Resp. 18.

Based on the record before us, we determine that the "reaction system" limitation is a means-plus-function limitation. *See* Pet. 10–13. As noted by Petitioner, with the "reaction system" limitation, the phrase "means for" is not used, and thus, there is a presumption that §112 ¶ 6 does not apply. *Id.* at 10. In this case, however, § 112 ¶ 6 applies because the "reaction system" limitation fails to recite sufficiently definite structure for performing the identified function. *See* Ex. 1026, 25 (ITC Supplement

Claim Construction Order) ("reaction system . . . fails to recite sufficiently definite structure and that the presumption against means-plus-function claiming is rebutted"). The functions for the "reaction system" limitation are: (i) "disable the cutting tool" for claims 1–18, and (ii) "perform a specified action" for claims 19–20. The corresponding structure is at least "a brake pawl actuated by a spring and fuse wire or by a DC solenoid or by a pressurized air or gas cylinder or by an explosive," for performing the recited functions. *See* Pet. 13.

"Detection Means" and "Control Means" of Claim 21

Claim 21 recites in pertinent part a "detection means for detecting a dangerous condition" and a "control means for determining the operability of the reaction means . . . and for disabling the motor if the reaction means is inoperable." Ex. 1001, 18:56–63. The above-quoted recitations from claim 21 presumptively set forth elements under 35 U.S.C. § 112 ¶ 6, and are construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc).

As noted above, for a means-plus-function element under 35 U.S.C. § 112 ¶ 6, the Board's trial rules require the Petition to identify the corresponding structure, material, or acts corresponding to each claimed function. Here, Petitioner did not comply with 37 C.F.R. § 42.104(b)(3). Petitioner does not provide any proposed analysis pursuant to § 112 ¶ 6 for "detection means" and "control means" in claim 21. *See* Pet. 6–13. Instead, Petitioner suggests that "detection means" and "control means" are not in means-plus-function format. *See* Pet. 45, n.14. The presumption, however, is that any claim written with the language "means for" invokes § 112 ¶ 6.

See Williamson, 792 F.3d at 1348 ("the use of the word 'means' in a claim element creates a rebuttable presumption that § 112, para. 6 applies") (citation omitted). As noted by Patent Owner, Petitioner has not provided any analysis that would overcome that presumption. *See* Prelim. Resp. 18–19 ("Bosch has failed to meet this burden because it has not identified corresponding structure, material, or acts for the "detection means" and "control means" limitations.").

With regard to alleged obviousness of claim 21 over prior art, Petitioner has not identified structure, material, and acts in the Specification of the '455 patent that correspond to the "detection means" and "control means" of claim 21. Therefore, Petitioner has not accounted for how such unidentified structures, materials, and acts would have been met by the prior art for claim 21.

II. ANALYSIS

A petition must show how the challenged claims are unpatentable under the statutory grounds it identifies. 37 C.F.R. § 42.104(b)(4). Petitioner bears the burden of demonstrating a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim for a petition to be granted. 35 U.S.C. § 314(a).

A. Time Bar Under 35 U.S.C. § 315(b) for ITC Complaint

Patent Owner contends the Petition is time barred under the plain meaning of 35 U.S.C. § 315(b) because Petitioner was served with an ITC complaint more than one year before the date this Petition was filed. Prelim. Resp. 1–2, 20–31. "Patent Owner recognizes there are three non-precedential Board decisions finding § 315(b) does not apply to ITC complaints, but respectfully submits that those decisions are in error." *Id.* at

2. Patent Owner presents an argument not considered in our prior decisions related to the language found in § 257(c). Patent Owner contends that construing "Patent Owner's Action" to refer only to a "civil action" in district court "contradicts language in other portions of the America Invents Act, notably § 257(c), which defines 'patent enforcement actions' as including 'an action brought under section 337(a) of the Tariff Act of 1930.'" *Id.* Accordingly, Patent Owner argues that the phrase "Patent Owner's Action" in the heading of § 315(b) should be interpreted to include both a "civil action" in a federal district court and a "Patent Enforcement Action[]" at the ITC, defined in § 257(c) as "an action brought under section 337(a) of the Tariff Act of 1930." *Id.* at 2.

Patent Owner also relies on *Texas Instruments., Inc. v. Tessera, Inc.*, 231 F.3d 1325, 1330 (Fed. Cir. 2000), which states, "this court has consistently treated section 337 patent infringement proceedings as litigation." Prelim. Resp. 28. Thus, according to Patent Owner, the logic from our *Amkor* decision that the drafters intended the triggering event of § 315(b) to be "tied to a pleading *in litigation*" should not preclude ITC actions from falling within § 315(b). *Id.* (internal citation omitted).

Petitioner replies that our non-precedential decisions have consistently determined that ITC complaints do not trigger the bar of § 315(b):

> The Board has several times previously correctly construed the "complaint" phrase in 35 U.S.C. § 315(b), finding that the complaint served by the I.T.C. on the named respondents in a Section 337 investigation is not a "complaint alleging infringement of the patent" for the purposes of the time bar set forth in § 315(b). *Amkor Tech., Inc. v. Tessera, Inc.*, IPR2013-00242, Paper 98, at 6–19 (P.T.A.B. Jan. 31, 2014) ("What matters is that the complaint pleads a cause of action for patent infringement and is served lawfully on the accused infringer in a

> civil action."); *Brinkmann Corp. v. A&J Mfg., LLC*, IPR2015-00056, Paper 10, at 7–8 (P.T.A.B. Mar. 23, 2015) (applying *Amkor* specifically to I.T.C. complaint); *LG Elecs., Inc. v. Straight Path IP Group, Inc.*, IPR2015-00196, Paper 20, at 7–9 (P.T.A.B. May 15, 2015) (same).

Reply 1. Petitioner notes that the only difference in these prior decisions is that the Patent Owner in this proceeding relies upon the language found in § 257(c)(2)(B) to argue that § 315(b) should include ITC complaints. Petitioner notes that § 257(c)(2)(B) specifically and separately lists both ITC investigations and 35 U.S.C. § 281 civil actions under the heading, "Patent Enforcement Actions." Petitioner argues "[i]f Congress had understood the plain language of the words 'Patent Enforcement Actions' (or the word "actions" by itself) to refer naturally to both ITC investigations and civil actions for infringement, there would have been no reason for Congress to recite both explicitly in § 257(c)(2)(B)." *Id.* at 3.

We decline to interpret § 315(b) as including ITC complaints. The title of § 315 is, "Relation to Other Proceedings or Actions." This title distinguishes "proceedings" from "actions." Section 315(b) refers only to an "action." Paragraph (e)(2) of § 315 specifically identifies an ITC investigation as a "proceeding," and separately refers to a "civil action." Moreover, § 315(b) refers to "infringement," not to "patent enforcement." There is nothing in the interplay of this section and § 257 of Title 35 to suggest that either "proceedings" and "actions," or "infringement" and "patent enforcement," are interchangeable in the context of the title of § 315(b) ("Patent Owner's Action"). Further, when Congress intended a specific provision of the Leahy–Smith America Invents Act to apply to ITC proceedings, it took care to recite "section 337" in the body of the statute.

For example, in 35 U.S.C. §§ 257(c)(2)(B) and 325(e)(2), "section 337" is written into the body of those subsections. Congress excluded the words "section 337" and "proceeding" from § 315(b). We decline to supply words or phrases into the statute that Congress did not include, particularly where the statute can be readily interpreted and applied, as it is to civil actions, without the excluded language .

Importantly, Section 257 relates specifically to supplemental examination of patents before the Patent Office, not inter partes review, and in particular, § 257(c)(2)(A)-(B), promulgates "a civil action" and "an action brought under section 337(a)" as separate express "Exceptions" to § 257(c)(1). We are unaware of, nor has Patent Owner apprised us of any statutory language or precedent that ties "an action brought under section 337(a)" set forth in § 257 (of Chapter 25) to § 315(b) (of Chapter 31) and *inter partes* review. For these reasons and for the reasoning set forth in our prior decisions cited supra, we decline to extend § 315(b) to cover ITC complaints.

B. Obviousness Based on Sørensen and Lokey, in View of the Ordinary Knowledge of One of Ordinary Skill in the Art

Petitioner challenges the patentability of claims 1–3, 5–12, 14–17, and 19–21 of the '455 patent under 35 U.S.C. § 103(a) as obvious based on Sørensen and Lokey, in view of the ordinary knowledge of one of ordinary skill in the art. Pet. 28–54. Petitioner relies on the testimony of its declarant, Mr. Bruce W. Main (Ex. 1003) for ascertaining the knowledge of one of ordinary skill in the art. *Id*. We have reviewed Petitioner's contentions and supporting evidence as well as the Patent Owner's contentions and supporting evidence related to secondary considerations of

nonobviousness. Given the evidence of record, we are not persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–3, 5–12, 14–17, and 19–21 of the '455 patent would have been obvious. We begin our analysis with the principles of law that apply generally to a ground based on obviousness, followed by a brief summary of each reference, and then the reasons for our determination.

1. Principles of Law

A claim is unpatentable under § 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) where in evidence, so-called secondary considerations. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

"A determination of whether a patent claim is invalid as obvious under § 103 requires consideration of all four *Graham* factors, and it is error to reach a conclusion of obviousness until all those factors are considered." *Apple v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc) (citations omitted). "This requirement is in recognition of the fact that each of the *Graham* factors helps inform the ultimate obviousness determination." *Id.* The Federal Circuit has recognized that:

> Indeed, evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in

> light of the prior art was not. It is to be considered as part of all the evidence, not just when the decision maker remains in doubt after reviewing the art.

Id. at 1052–53 (*quoting Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538–39 (Fed. Cir. 1983)).

2. Overview of Sørensen (Ex. 1004)

Sørensen discloses "[a] method and a device for sensing the distance between a first object and a second object so as to activate or facilitate predetermined actions when the distance has attained a certain value." Ex. 1004, Abstract (57). Sørensen "relates to a method and a device for protecting an object such as . . . a portion of a human body . . . from the action of an active portion of an apparatus such as . . . a hand-held power tool, a stationary processing machine, excavating equipment and the like." *Id.* at 2:23–27.

Sørensen discloses detecting a dangerous condition, for example, by capacitively "sensing the distance between a first object and a second object so as to activate or facilitate predetermined actions when the distance has attained a certain value" (where the first object is "[a] person" and the second object the "active portion"). *Id.* at Abstract (57), 5:21–23, 16:3–17:30, Figs. 1–2. Sørensen also discloses a control unit that controls an alarm and self-testing circuitry. *Id.* at Abstract (57). Sørensen includes a "predetermined check intensity and/or automatic check routine of said protective operations [that] indicates that they are able to function properly." *Id.* at 6:16–18. Sørensen further discloses that

> a second signal is transmitted by said transmitting system, the action of the active portion not being started or, if already having been started, being interrupted if said second signal is not received by said receiving system and/or an automatic check

> routine of said protective operations indicates that they are not able to function properly. Hereby the second signal functions as a verifying signal for verifying that the security system is operative.

Id. at 6:25–32.

3. Overview of Lokey (Ex. 1005)

Lokey relates to an "automatic electrically actuated brake for the spinning blade of rotary blade equipment" such as a "handheld circular saw" and "table saw." Ex. 1005, 1:7–9, 1:57–62, 2:36–38, Figs. 1, 7–9. Lokey discloses "an automatic safety blade for rotary blade equipment in which a capacitance proximity sensor utilizes the spinning blade as an antenna so that when any portion of the body of the user approaches, the blade to [sic] closely a cam brake will be instantaneously actuated to stop the rotation of the blade." *Id.* at Abstract (57).

Lokey describes "an antenna 16 positioned close to the blade 13 so that the blade 13 becomes a part of the electronic circuit." *Id.* at 1:63–2:6. The antenna is connected to an amplifier, a discriminator, an electronic relay, and an adjustment knob, which "together serve as a capacitance proximity sensor." *Id.* Activation of the proximity sensor triggers "a bell 20 and a brake solenoid 21." *Id.* "The movement of the brakes 24 into engagement with the blade 13 is virtually instantaneous and the blade 13 stops prior to even the slightest contact with the body of the user." *Id.* at 2:25–31.

4. Discussion

Petitioner contends that the combination of Sørensen and Lokey in view of the ordinary knowledge of the person of ordinary skill in the art teaches or suggests each limitation of claims 1–3, 5–12, 14–17, and 19–21.

Pet. 28–54. Petitioner supports its contentions with citations to the references and with the testimony of Bruce Main. Ex. 1003. Below, we consider each remaining *Graham* factor.

a. The Level of Skill in the Art

Petitioner contends:

> A person of ordinary skill in the art in that field as of July 1999 (a "POSITA") would have had an education and/or work experience sufficient such that the POSITA would have understood the electro-mechanical workings of power tools of that era (and previous eras), specifically power saws, as well as the level of need and concern at that time for safety mechanisms to protect both professional and amateur users of those tools. *Id.* at ¶¶22, 28–32. The POSITA would also have had knowledge of then-existing power tools, and safety systems therefor. *Id.* at ¶¶28–32.

Pet. 5–6. Patent Owner does not object to the above portion of Petitioner's analysis. Prelim. Resp. 19–20. Petitioner continues, however, by alleging:

> The POSITA would further have had an understanding and knowledge of then-existing safety systems to protect users of other dangerous equipment (*i.e.*, non-power tool equipment, such as vehicles and other factory machines). *Id.*

Pet. 6. This second portion of Petitioner's description is overly broad for the reasons set forth by Patent Owner. *See* Prelim. Resp. 19–20. Namely, Petitioner does not provide adequate support for the assertion that the person of ordinary skill in the art would have had an understanding and knowledge of then-existing safety systems to protect users of other dangerous equipment (i.e., non-power tool equipment, such as vehicles and other factory machines). *Id.* at 19. Although we agree with the first portion of Petitioner's assessment, we limit the relevant background of the person of ordinary skill in the art to a person with knowledge of power tools and

related safety systems.

b. Scope and Content of the Prior Art and Differences Between the Claimed Subject Matter and the Prior Art

The claimed reaction and detection systems are similar to those described by the prior art combination. Each independent claim also requires a control system configured to determine the operability of the reaction system without having to operate the reaction system. We focus our analysis on these control system limitations.

Petitioner first contends the control system limitations are "disclosed by Sørensen and Lokey." Pet. 38. Petitioner's expert, however, states "Sørensen and Lokey do not *explicitly* teach testing the reaction system *without operating it*, but I believe that would have been an obvious modification." Ex. 1003 ¶ 173. Petitioner does not explain this discrepancy.

Petitioner argues that "Sørensen recognizes that 'it is extremely important that it is ensured as far as possible that the security system is operative so that a false sense of safety is not imparted in case the security system has been rendered inoperative for some reason . . . .' Ex. 1004, 6:9–13; Ex. 1003, ¶ 169." Pet. 38. Petitioner then alleges that "Sørensen discloses an 'automatic check routine' that determines the operability of the reaction system (both prior to and during operation), and prevents operation of the active portion (*e.g.*, the saw blade), if the check fails." *Id.* at 38–39 (quoting Ex. 1004, 6:9–31).

Petitioner contends that "[t]o the extent that Patent Owner argues that Sørensen and Lokey do not explicitly teach testing the reaction system ***without operating it***, that would have been an obvious modification. Ex. 1003, ¶173." *Id.* at 39. According to Petitioner:

> Sørensen specifically discloses that its "automatic check routine" is performed at various times, including ***after*** "the action of the active portion . . . ha[s] been started" (*e.g.*, during operation when the saw blade is already spinning). Ex. 1004, 6:9–31; Ex. 1003, ¶173. A POSITA would have understood that it is undesirable—and potentially dangerous—for the "automatic check routine" to operate the reaction system (*e.g.*, turn off the motor, brake the blade, displace the blade, etc.) while the saw blade is spinning, and the user is operating the machine (*e.g.*, feeding wood into the blade). Ex. 1003, ¶173. The same is true for Lokey's blade-braking reaction system. *Id*. Therefore, the POSITA would have been motivated to test only those portions of the reaction system that would not require deployment. *Id*.

Pet. 39–40.

Patent Owner contends, "[w]ith respect to each of claims 1, 14, 19, and 21, the combination of Sørensen and Lokey does not disclose a control system that is 'configured to determine the operability of the reaction system *without having to operate the reaction system*.'" Prelim. Resp. 43. Patent Owner first argues that Petitioner improperly substitutes the knowledge of a person of ordinary skill in the art instead of a specific prior art reference to supply the missing claim limitation in violations of § 311(b). *Id.* at 44.

Second, Patent Owner contends Petitioner and its expert fail to provide underlying facts or evidence to support their argument that a person of skill in the art would have been motivated to test Sørensen's reaction system without having to operate the reaction system. *Id.* According to Patent Owner, Petitioner's "argument relies on the assumption that Sorensen discloses 'portions of the reaction system that would not require deployment,' but Bosch and its expert do not identify any specific portions of Sorensen that meet that requirement." *Id.* (quoting Pet. at 40; Ex. 1003 ¶ 173). More specifically, Patent Owner contends there is no evidence to

suggest how one would test only those portions of Sørensen's reaction system that would not require deployment. *Id.* *See also id.* at 46 (Petitioner "does not identify any specific portion of Sorensen that would be tested, or how it would be tested in order to satisfy the claim requirements.").

Patent Owner further contends that the lack of teaching in the cited art suggests that the only motivation for modifying the combination of Sørensen and Lokey to test a reaction system without having to operate the reaction system is impermissible hindsight. *Id.* Patent Owner contends that "[t]he need to determine the operability of the reaction system without having to operate the reaction system arises in the context of single-use systems as disclosed in the '455 patent specification," whereas the cited references generally adopt repeat-use systems that are able to activate the reaction system multiple times without having to repair or replace any parts. *Id.* at 44–45. Thus, according to Patent Owner, "[a]bsent the teachings of the '455 patent, there is not a legitimate rationale or motivation to modify repeat-use systems so that they are tested without having to operate them." *Id.* at 45.

On the record before us, Petitioner has not persuasively established that the combination of Sørensen and Lokey teach a control system configured to test the reaction system without operating it. Petitioner acknowledges that Sørensen's "automatic check routine" is performed after the active portion has started during operation. Pet. 39–40. Further, Petitioner's proposed modification to test the reaction system without operating it is not suggested by the references. Petitioner does not explain adequately how the proposed modification would be implemented.

Patent Owner has presented persuasive evidence that the control system limitation is an important structural limitation that is not evidently

and indisputably within the common knowledge of those skilled in the art. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362–63 (Fed. Cir. 2016). We, therefore, disagree with Petitioner's contention that a POSITA would have recognized to test the reaction system without operating it, when the evidence does not support such a testing configuration, and Petitioner does not provide sufficient evidentiary support with a reasoned explanation. Further, Petitioner does not establish persuasively what "portions" of Sørensen's reaction system could be tested prior to deployment or how such testing would occur.

Based on the record before us, Petitioner has not established persuasively that the combination of Sørensen and Lokey in view of the ordinary knowledge of the person of ordinary skill in the art teach a control system configured to determine the operability of the reaction system without having to operate the reaction system.

c. Secondary Considerations

Patent Owner contends "[e]vidence of secondary considerations from the ITC action confirms that the challenged claims are non-obvious." Prelim. Resp. 54 (citing Ex. 2010[5] at 120–128). Patent Owner's secondary considerations analysis addresses nexus, long felt but unsolved need, initial skepticism, industry praise, and commercial success. Below, we address each in turn, but we first determine whether it is appropriate to consider Patent Owner's evidence for purposes of this Decision whereas Petitioner has not addressed secondary considerations in its Petition.

As the Federal Circuit has explained, a determination as to whether a

[5] For citations to Exhibit 2010, we rely on the original page numbering and not Patent Owner's added page numbers.

claim is invalid as obvious under § 103 requires consideration of all four *Graham* factors, including secondary considerations. *Apple*, 839 F.3d at 1048. Although we are mindful that at this stage of a proceeding a petitioner may be unaware of a patent owner's potential objective indicia of nonobviousness, in the case before us Patent Owner relies upon evidence that was introduced during the related ITC proceeding against Petitioner. *See* Prelim. Resp. 8, 9, 54–57. Indeed, after development of the record at the ITC, including cross-examination, the Administrative Judge determined that the evidence of secondary considerations was "very strong" in favor of Patent Owner. Ex. 2010, 120–21 (Initial Determination on Violation of Section 337)[6] ("I find the evidence of secondary considerations in this case to be very strong.").

We have cautioned petitioners in prior proceedings that known evidence of secondary considerations should be addressed in the petition. *See Coalition for Affordable Drugs V LLC v. Hoffman-LaRoche, Inc.*, IPR2015-01792 (PTAB, Mar. 11, 2016) (Paper 14) (denying institution for failure to address objective indicia considered by Examiner during original prosecution); *Merial Ltd. v. Virbac*, IPR2014-01279 (PTAB, Jan. 22, 2015) (Paper 13) (denying institution for failure to address objective indicia considered by Examiner during original prosecution and noting "Merial was aware of the unexpected results showing which the Examiner found persuasive . . . . Merial should have addressed unexpected results in the first instance."); *Omron Oilfield & Marine Inc. v. MD/TOTCO*, IPR2013-00265

[6] On November 10, 2016, the Commission determined not to review the Initial Determination. Ex. 3001 (unofficial docket of Inv. No. 337-TA-965).

(PTAB, Oct. 31, 2013) (Paper 11) (denying institution for failure to address objective indicia successfully argued in a reexamination). *But see Petroleum Geo-Services Inc. v. Western Geco LLC*, IPR2014-01477 (PTAB, Mar. 17, 2015) (Paper 18, 32) (finding "at the time of filing of the present Petition, no evidence of secondary indica of nonobviousness in the record of this proceeding" and "the evidence of secondary indicia of non-obviousness must be first developed in this proceeding by Patent Owner"). Further, our Trial Practice Guide explains, "[t]he Board expects that most petitions will raise issues of obviousness. In determining whether the subject matter of a claim would have been obvious over the prior art, the Board *will review* any objective evidence of nonobviousness proffered by the patent owner *where appropriate*."). *Office Patent Trial Practice Guide*, 77 Fed. Reg. 48,756, 48763 (Aug. 14, 2012) ("*Trial Practice Guide*") (emphases added); *see also* 37 C.F.R. § 42.107(a) ("a preliminary response . . . can include supporting evidence"). We determine that we may consider Patent Owner's evidence at this stage of our proceeding because Petitioner was a party to the ITC proceeding and the evidence was developed fully during that proceeding. In this particular case, we determine it is appropriate to review and address the objective evidence of nonobviousness proffered by the Patent Owner for purposes of this Decision.

In the case before us, Petitioner has not addressed secondary considerations of nonobviousness.[7] Patent Owner, on the other hand, has

[7] The Petition does not mention secondary considerations. The Main Declaration states only: "I am doubtful that these other indicia would be sufficiently strong enough, or related enough to the claimed features, to reverse the technical analysis that the claims are obvious." Ex. 1003, ¶ 27.

presented evidence demonstrating that the products made by its manufacturing company (SawStop) embody the combination of elements that constitute at least the independent claims as a whole. Patent Owner has also presented evidence of long felt but unsolved need, awards, industry praise, initial skepticism, and commercial success of these products. Below, we examine the evidence before us that was also presented during the ITC proceeding – evidence the Petitioner was aware of before filing the current Petition.[8]

i. Commercial Products Embody the Claimed Invention

Patent Owner contends that "SawStop sells four table saw models, each of which was shown to practice claims 1, 5, 10, and 16 of the '455 patent during the ITC action. Ex. 2010 at 81-85." Prelim. Resp. 55. Patent Owner cites to testimony from Stephen Gass, "a named inventor of the challenged patents and a founder of SD3 and SawStop." Prelim. Resp. 7–11, 54–56. This testimony explains how the SawStop table saws embody the features of the claims, including a self-testing control system to ensure the brake was operational prior to and during use of the saw. *Id.* at 7–8 (citing Ex. 2003, 196:12–19–201:10). *See also* Ex. 2010, 121 ("The asserted claims of the patents-in-suit are commensurate in scope with SawStop's

[8] Although the ITC Initial Determination (Ex. 2010) issued on September 29, 2016, and the Petition in this proceeding was filed on September 14, 2016, the ITC hearing took place in May 2016. *See* Ex. 2003; Ex. 3001. The evidence we rely on was before the ITC, and known to Petitioner, prior to the Initial Determination. Petitioner was also aware by September 9, 2016, that "Sawstop's domestic industry products practice the asserted claims of [the '455 patent]" and the claims of the patents in the ITC proceeding were not invalid. Ex. 3002 (Notice of Initial Determination on Violation of Section 337) (Sept. 9, 2016).

products-e.g., the SawStop products are woodworking machines with a detection system, reaction system, control system, motion detection system, and self-test system that meet the claimed performance parameters.") (internal citations omitted); Ex. 2014, 4 (United States Consumer Product Safety Commission – "CPSC") (Evaluation of SawStop Prototype Tablesaw Safety Device, July 19, 2001) (discussing the "self-tests designed into the circuitry" of a prototype model).

We find persuasive the testimony and evidence that the commercial SawStop table saws embody the claimed features of at least the independent claims of the '455 patent.

ii. Satisfaction of a Long-felt but Unsolved Need, Skepticism, and Unexpected Results

The satisfaction of a "long-felt, but unsolved need" by the claimed invention can serve as objective evidence of non-obviousness. *Ferring B.V. v. Watson Labs., Inc.-Florida*, 764 F.3d 1401, 1407 (Fed. Cir. 2014). Patent Owner presents evidence that that there was a long-felt need for a commercially viable table saw safety system capable of "eliminat[ing] the thousands of injuries caused every year by woodworking tool accidents." Prelim. Resp. 8, 9, 55, 56. Patent Owner also argues persuasively that safety systems in table saws were not effective at mitigating finger and hand injuries prior to the release of SawStop products. *Id.* at 8–9; Ex. 2004 (Washington Post article titled "*Safety Isn't Always Top Priority*," July 14, 2001). For example, about 3,000 people a year would lose a finger in table saw accidents. Ex. 2003, 219:14–16; Ex. 2014, 1 ("Table saws account for approximately 30,000 injuries to the hand or finger per year, with approximately 10% of these injuries involving amputation."); Ex. 2004, 1

("nearly 3,500 involved finger and hand amputations"); *see also* Ex. 2010, 124 ("The evidence adduced at the hearing demonstrates that, at the time of the invention, there was a long-felt but unresolved need for enhanced safety features in woodworking machines."); *id.* at 126.

The CPSC explained in July 2001 that table saws were inherently dangerous and current safety guards did not work well. Ex. 2014, 2 ("The most effective measures are those that design the hazard out of the product. This has not been possible with tablesaws; the operational requirements of tablesaws seem to preclude the possibility of removing the hazard."). This evidence suggests that there was skepticism that active safety technology could be designed successfully to mitigate injuries resulting from table saw accidents at the time of the invention. The CPSC engineers recognized that SawStop's "concept is valid and the prototype impressively demonstrates its feasibility." *Id.* at 6. The approach, however, was found to be "sophisticated and potentially vulnerable" by the CPSC engineers, suggesting that these engineers displayed initial skepticism. *Id.* at 2. According to the engineers of the CPSC, "[t]iming is everything; the blade begins to cut into the operator's finger before the system can work, and it must work reliably and very quickly to limit the injury." *Id.* Similarly, the CPSC engineers expressed concern that the safety system "may not indicate to the user that it will not perform." *Id.* at 7.

Based on the record before us, SawStop presented evidence that its commercial products met this long felt, but unsolved need, and overcame initial skepticism. Prelim. Resp. 10, 55, 56; Exs. 2004, 2006. For example, from 2004 to 2016, SawStop built a thriving business around a line of table saws that incorporate its patented implementation of active injury mitigation

technology. *Id.* at 55–56; Ex. 2007 ¶¶ 3, 4, 8–10 (ITC Initial Determination of Economic Prong of the Domestic Industry Requirement, Mar. 22, 2016). SawStop claims its table saws were the only products on the market with active injury mitigation technology until 2016. Most importantly, the SawStop safety features resulted in over 3,500 documented finger saves by 2016. Prelim. Resp. 10 (citing Ex. 2003, 288:8–298:9).

Further, we determine that the long felt need is tied to the detection and reaction system limitations as well as the ability of the control system to determine the operability of the reaction system without having to operate the reaction system. More specifically, the reaction and detection systems enabled the SawStop products to save about 3,500 fingers or hands from amputation or serious injury, satisfying a long felt but unsolved need in the table saw safety industry. *See* Prelim Resp. 50; Exs 2004, 2006.

Based on the record before us, the SawStop products embodying the claimed invention satisfied a long felt, but unsolved need in the table saw safety market and this factor weighs heavily in favor of nonobviousness.

Further, although not as persuasive, Patent Owner has presented evidence that the industry met SawStop safety technology with initial skepticism and SawStop table saw produced unexpected results. Exs 2004, 2006, 2014. Although this evidence is limited, these factors also weigh favorably toward nonobviousness.

iii. Industry Praise and Recognition

Patent Owner contends "[t]he evidence of secondary considerations also shows that at the time of the invention there was praise for the claimed invention, and in particular the self-test features." Prelim. Resp. 56. SawStop's table saws have received numerous awards and recognition.

Prelim. Resp. 8–10; Ex. 2007 ¶ 6. Below, we discuss a few of these awards and articles. The volume of accolades supports finding the challenged claims would have been nonobvious. *See Vulcan Engineering Co. v. Fata Aluminum Inc.*, 278 F.3d 1366, 1373 (Fed. Cir. 2002) ("Appreciation by contemporaries skilled in the field of the invention is a useful indicator of whether the invention would have been obvious.").

In July of 2001, the United States CPSC awarded SawStop the Chairman's Commendation for Substantial Contributions to Product Safety. Ex. 2006. The CPSC Commendation states:

> We are very impressed with your development of new safety technology for power saws. The SawStop system is innovative and will enhance the safety of consumers. We believe it will prevent many of the finger amputations and other serious injuries that have harmed users of power saws in the past. We are particularly pleased that the safety design will protect users while requiring no special action on the part of the user. We consider your technological innovation an outstanding advance in power saw safety, and we are pleased to recognize your company for this achievement.

Id. During the award presentation, Chairman Brown stated "[o]ur chief engineer Hugh McLaurin tells me your technology is 'sophisticated, robust and intelligently designed, while being simple in its components and use' . . . . It is truly a marvelous innovation." Ex. 2005, 5–6. The CPSC engineers also recognized that the self-tests designed into the circuitry were an important part of the overall invention. Ex. 2014, 4, 7.

In July 2001, the Washington Post published an article featuring the SawStop products. Ex. 2004. Within that article, the Post quoted industry personnel as stating: "Safety wise, it is probably one of the most innovative features I've seen in the last 20 years," and "probably one of the most major

developments in the area of product safety applicable for table saws." *Id.* at 1. The individuals making these statements were not only contemporaries skilled in the field of the invention, but they also worked for competitors of SawStop. *See id.* (identifying the individuals as a director of product safety for SB Power Tool Co, which makes Bosch tools, and a manager of product development for Delta Machinery).

SawStops' list of awards and media coverage for its table saw safety technology is extensive:

> the Breakthrough Award from *Popular Mechanics* magazine; one of the 100 Best New Innovations from *Popular Science* magazine; one of the Top 10 Tools from *Workbench* magazine; Award of Quality Editor's Choice from *Workbench* magazine; Readers' Choice Award from *Woodshop News* magazine; Best Innovations from *Time* magazine; Woodwork Institute of California Endorsement; Sequoia Award from the Association of Woodworking & Furnishings Suppliers; Imhotep Award from the International Social Security Association; Nova Award from the Construction Innovation Forum; Editor's Choice Award from *Tools of the Trade* magazine; Editor's Best Overall Choice and Readers' Choice Awards from *Taunton's Tool Guide;* the Heartwood Award from the Architectural Woodwork Institute; the Innovation Award from *Handy Magazine;* and features on the Discovery Channel's *Time Warp* program, the *Colbert Report*, CNN, and *This Old House*.

Prelim. Resp. 10–11 (citing Ex. 2003 at 218:17–225:12, 226:12–230:6.1); *see also* Ex. 2007 ¶ 6; Ex. 2006. Because SawStop's commercial embodiments encompass the patented features of at least the independent claims of the '455 patent, we determine that the awards and recognition listed above are linked sufficiently to the merits of the claimed invention.

Patent Owner persuasively establishes that "the patented injury mitigation technology incorporated into SawStop's saws is a 'but for' reason

for the products' success, and the company would not exist without the technology." Prelim. Resp. 55. Likewise, the record supports Patent Owner's contention that "[t]he self-test feature in SawStop's products is an important part of the safety system because it ensures the system will react in response to a dangerous condition, and prevents operation of the saw if not." *Id.* The CPSC evaluation also emphasized the self-test capability of the SawStop products. Ex. 2014, 4.

Based on the record before us, we determine that the factor of industry praise and recognition weighs strongly in favor of nonobviousness.

iv. Commercial Success

We have considered Patent Owner's evidence of commercial success and determine that it is somewhat persuasive, but not developed adequately on the record before us. *See* Prelim. Resp. 54–56. Patent Owner presents evidence that the SawStop products with the patented technology enjoyed significant sales growth despite the fact that these products sold for higher cost compared to saws without the patented safety features. *Id.* at 56 ("SawStop's market position has grown continuously since their introduction, despite the fact that its products are more expensive than competing table saws without active injury mitigation technology.") (citing Exs. 2003, 2007).

Patent Owner persuasively establishes that "the patented injury mitigation technology incorporated into SawStop's saws is a 'but for' reason for the products' success, and the company would not exist without the technology." Prelim. Resp. 55. Likewise, the record supports Patent Owner's contention that "[t]he self-test feature in SawStop's products is an important part of the safety system because it ensures the system will react

in response to a dangerous condition, and prevents operation of the saw if not." *Id.*

Although Patent Owner has presented evidence to demonstrate the unique characteristics of the claimed safety system helped drive sales, Patent Owner has not fully developed whether other economic and commercial factors unrelated to the patented subject matter may have also contributed to sales and success. In addition, Patent Owner's economic and sales evidence provides only a snapshot of sales for certain years with limited context. We therefore weigh the factor of commercial success only slightly favorable toward Patent Owner.

d. Conclusion

On the record before us, we do not agree that the combination of Sørensen and Lokey in view of the ordinary knowledge of the person of ordinary skill in the art teaches or suggests each limitation of claims 1–3, 5–12, 14–17, and 19–21. Specifically, Petitioner has not established that a person of ordinary skill in the art would have known to modify a control system to test the alleged reaction system of the prior art combination without operating it as required by each independent claim. Petitioner has attempted to fill this gap with conclusory expert testimony that, itself, does not cite to evidentiary support for the proposed modifications to the art.

Based on the record before us, Patent Owner has presented evidence of a nexus between Patent Owner's commercial SawStop table saws and the merits of the claimed invention. The record before us establishes that the claimed invention satisfied a long felt, but unsolved need. Further, SawStop's commercial embodiments were highly regarded in the industry and received considerable praise and recognition that is tied to the features

of the patented invention.

Weighing the evidence of obviousness and nonobviousness as a whole, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on its challenge to claims 1–3, 5–12, 14–17, and 19–21 of the ’455 patent as obvious.

C. Obviousness Based on Sørensen and Nieberle, in View of the Ordinary Knowledge of One of Ordinary Skill in the Art

Petitioner challenges the patentability of claims 1–3 and 5–20 of the ’455 patent under 35 U.S.C. § 103(a) as obvious based on Sørensen and Nieberle in view of the ordinary knowledge of the POSITA. Pet. 54–61. In support thereof, Petitioner first states “Sørensen and Nieberle render obvious claims 1–3 and 5–20, where the ‘reaction system’ is given its plain and ordinary meaning.”[9] *Id.* at 54. Nieberle is relied upon for its description “of a detection system, as well as a reaction system that displaces the saw blade (i.e., through a pivoting retraction).” Pet. 54. Petitioner contends, “Nieberle provides specific details of its saw blade pivoting device,” as part of the proposed combination. *Id.* at 55.

With respect to the control system limitation of each independent claim, Petitioner contends that “[t]his limitation is obvious in view of Sørensen and Nieberle for the same reasons as it is in view of Sørensen and Lokey. As discussed above §V.B.1.a, a POSITA would have understood

[9] As discussed in the claim construction analysis, we determined that the “reaction system” limitation was in means-plus-function format. Petitioner does not examine this ground under that construction and explain how the identified structure in the Specification of the ’455 patent that corresponds to the “reaction system” would have been taught by the prior art. Accordingly, Petitioner’s analysis is deficient.

that Sørensen's automatic test routine necessarily occurs without the reaction system operating." *Id.* at 59.

We have reviewed Petitioner's contentions and supporting evidence as well as the Patent Owner's contentions and supporting evidence related to secondary considerations of nonobviousness. Given the evidence of record, and for the same reasons set forth above for the combination of Sørensen and Lokey, we are not persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–3 and 5–20 of the '455 patent would have been obvious in view of on Sørensen and Nieberle.

IV. CONCLUSION

Petitioner has not shown a reasonable likelihood that it would prevail in establishing the unpatentability of claims 1–3 and 5–21 on any ground of unpatentability asserted in the Petition.

V. ORDER

It is, therefore,

ORDERED that the Petition is denied as to all challenged claims and no trial is instituted.

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