

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LES ATELIERS BEAU-ROC INC.,
Petitioner,

v.

AIR POWER SYSTEMS CO., LLC,
Patent Owner.

IPR2020-01702
Patent 7,976,105 B2

Before HYUN J. JUNG, KEVIN W. CHERRY, and RYAN H. FLAX,
Administrative Patent Judges.

CHERRY, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Denying Patent Owner's Motion to Exclude
35 U.S.C. § 318(a)

I. INTRODUCTION

A. BACKGROUND

Les Ateliers Beau-Roc Inc. ("Petitioner") filed a Petition for *inter partes* review of claims 1–20 of U.S. Patent No. 7,976,105 B1 (Ex. 1001, "the '105 patent"). Paper 1 ("Pet."). Air Power Systems Co., LLC, formerly

known as Air Power Systems Co., Inc., (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Patent Owner supported its Preliminary Response with the Declaration of Jon B. Hogins. Ex. 2001.

On April 19, 2021, based on the record before us at the time, we instituted an *inter partes* review (Paper 7, “Dec.”) of claims 1–20 of the ’105 patent on the following grounds (Pet. 2):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–20	103(a) ¹	Stoll ² , “General Knowledge of One of Ordinary Skill”
1–20	103(a)	Stoll, Weber ³ , “General Knowledge of One of Ordinary Skill”
1–20	103(a)	Martin ⁴ , Stoll
1–20	103(a)	Martin, Stoll, Weber
1–20	103(a)	Biddy ⁵ , Stoll
1–20	103(a)	Biddy, Stoll, Weber

Petitioner supports its Petition with a Declaration by Paul Raymond. Ex. 1012.

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the ’105 patent has an effective filing date prior to the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of § 103. Regardless of which version of the statute applies, our ultimate decision would not change.

² GB 1 212 586, published Nov. 18, 1970 (Ex. 1005, “Stoll”).

³ AT 398 739 B, published Jan. 25, 1995 (English Translation in Ex. 1007, Original in Ex. 1006, “Weber”).

⁴ US 3,860,288, issued Jan. 14, 1975 (Ex. 1003, “Martin”).

⁵ US 4,989,918, issued Feb. 5, 1991 (Ex. 1004, “Biddy”).

Patent Owner filed a Response in opposition to the Petition (Paper 11, “PO Resp.”). Patent Owner supported its Patent Owner Response with the Second Declaration of Jon B. Hogins. Ex. 2005. Patent Owner also provided the Declaration of Vince Williams. Ex. 2006. Petitioner filed a Reply in support of the Petition (Paper 15, “Reply”). Patent Owner filed a Sur-reply responding to the Reply (Paper 16, “Sur-Reply”).

Patent Owner filed a Motion to Exclude the testimony of Paul Raymond. Paper 18 (“Mot. Exclude”). Petitioner filed an Opposition to the Motion to Exclude. Paper 19 (“Opp.”). Patent Owner filed a Reply in Support of its Motion to Exclude.⁶ Paper 21 (“PO Mot. Reply”).

Both parties requested an oral hearing. *See* Paper 17. A transcript of the oral hearing is entered in the record. Paper 28 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. The evidentiary standard is a preponderance of the evidence. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2020). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

B. REAL PARTIES IN INTEREST

The Petitioner identifies the “real party in interest for the petitioner [a]s Les Ateliers Beau-Roc Inc., which is wholly owned by 6023797 Canada Inc., which is wholly owned by Les Usines D’Autray Ltee, which is owned

⁶ Patent Owner’s Reply in Support of its Motion to Exclude was due on January 18, 2022, but Patent Owner was unable to file its Reply in the PTAB E2E on that date. *See* Paper 22, 2. Patent Owner has requested permission to file its Reply late. *See id.* This request is unopposed. Having reviewed Patent Owner’s Request, we grant Patent Owner’s request for acceptance of its Reply.

IPR2020-01702
Patent 7,976,105 B2

by Nathalie Bibeau and by Les Acquisitions Bibeau Inc., which is wholly owned by Nathalie Bibeau.” Pet. vi.

Patent Owner identifies the real party in interest as Air Power Systems Co., LLC. Paper 4 § 1.

C. RELATED PROCEEDINGS

The parties identify *Air Power Systems Co. v. Les Ateliers Beau-Roc Inc.*, No. 19-cv-1344-HLT-TJJ, in the U.S. District Court for the District of Kansas. Pet. vi; Paper 4 § 2.

D. THE '105 PATENT

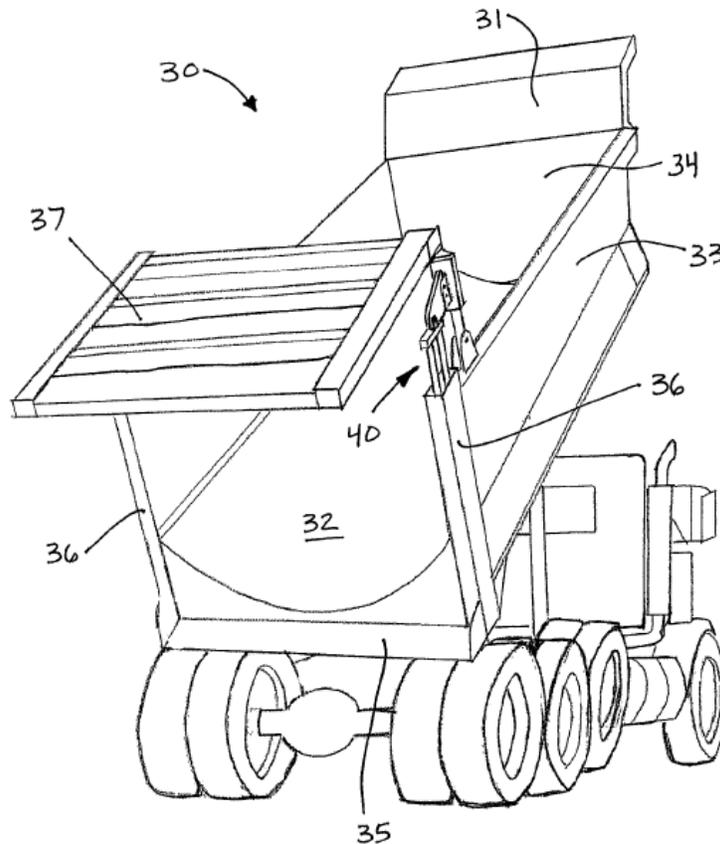
The '105 patent is titled “Double Cylinder Assembly for Raising and Lowering a Dump Truck Tailgate.” Ex. 1001, [54]. The '105 patent issued from Application Serial No. 12/171,321, filed on July 11, 2008, and claims priority to Provisional application No. 60/959,394, filed on July 13, 2007. *Id.* at [21], [22], [60].

The '105 patent relates to “mechanisms for raising and lowering a tailgate provided on a dump box of a dump truck, trailer, or similar vehicle,” specifically “a double cylinder assembly for raising and lowering such a tailgate that is pivotably supported on the dump box.” *Id.* at 1:13–17.

The '105 patent describes a “typical dump truck” where “the open rear end of the dump box includes a pair of upstanding corner posts that are each formed from a hollow rectangular member” and which support a pivoting tailgate. *Id.* at 1:18–31. The tailgate is often moved between open and closed positions “by means of a cylinder (typically a pneumatic cylinder) that extends between the dump box and the tailgate.” *Id.* at 1:32–

35. The patent explains that the cylinder is typically located either in the hollow corner post, vertically, even though the corner post size may be “limiting,” or horizontally, on the outside of the dump box walls, which is inexpensive to install, but “does undesirably expand the overall width of the vehicle.” *Id.* at 1:42–58. To address these issues, the patent describes an improvement using a “double cylinder assembly.” *Id.* at 2:9–11.

Figure 4, reproduced below, shows a perspective view of a dump truck with a double cylinder assembly on each side of a tailgate.



Id. at Fig. 4. Figure 4 shows a dump truck 30 from a rear, perspective view, and having a raised dump box 31, corner posts 36, raised tailgate 37, and double cylinder assembly 40. *Id.* at 3:28–48. The '105 patent describes that:

two double cylinder assemblies 40 fit more efficiently within the respective hollow rectangular shape of the corner posts 36 than a conventional single pneumatic cylinder having a square or circular cross sectional shape. Therefore, the two double cylinder assemblies 40 provide more force than the single pneumatic cylinder could provide for a given size of the corner posts 36.

Id. at 4:12–18.

Of the challenged claims, claims 1 and 11 are independent. *Id.* at 4:44–63, 5:30–6:10. Claims 2–10 depend directly or indirectly from claim 1. *Id.* at 4:64–5:29. Claims 12–20 depend directly or indirectly from claim 11. *Id.* at 6:11–43.

Claim 1 is illustrative and is reproduced below.

1. An apparatus comprising:
 - a dump box having an open end;
 - a tailgate supported on the dump box for movement between a closed position, wherein the tailgate closes the open end of the dump box, and an opened position, wherein the tailgate is spaced away from the open end of the dump box; and
 - a double cylinder assembly that extends between the dump box and the tailgate for selectively moving the tailgate between the closed and opened positions; wherein either
 - (1) the dump box includes a corner post that is formed from a hollow rectangular member and the double cylinder assembly is disposed within the corner post, or
 - (2) the double cylinder assembly includes first and second cylinders that are disposed adjacent to one another, each of the first and second cylinders has a respective piston rod associated therewith, the piston rods are connected to a cross bar for concurrent extending and retracting movement, and the cross bar is connected to a yoke that, in turn, is connected to the tailgate of the dump box.

Ex. 1001, 4:44–63.

II. ANALYSIS

A. LEVEL OF ORDINARY SKILL

Petitioner proposes that a person of ordinary skill in the art “would have had at least several years of practical academic or industrial experience designing, testing, manufacturing, selling and/or servicing dump trucks and/or dump bodies with, or supported by a person with, a bachelor of science in a field of engineering or a closely related discipline.” Pet. 10 (citing Ex. 1012 ¶ 27).

Patent Owner proposes that a person of ordinary skill “would be as follows: A mechanical engineer having at least five year’s industrial experience in the engineering and design of dump bodies with high lift tailgates, including cylinder assemblies, for dump trucks.” Prelim. Resp. 4 (citing Ex. 2001 ¶ 34). Patent Owner argues that in setting forth its proposed level of ordinary skill, “Petitioner has cast a very wide net, covering a person with at least several years’ experience in sales of dump bodies to one with 30 years’ experience in testing, designing, manufacturing, servicing, and selling dump trucks and dump bodies.” *Id.* at 6.

In our Decision on Institution, we agreed with Patent Owner that Petitioner’s proposal is relatively broad given the repeated use of “and/or” in the definition and the vagueness of the term “several years.” Dec. 7. We concluded that “[f]or purposes of this Decision, we adopt Patent Owner’s proposed level of ordinary skill, as it appears to be consistent with the level of skill, and choice of language, reflected by the specification and in the asserted prior art references.” *Id.*

At the oral hearing, we asked Patent Owner a number of questions about its definition. Tr. 15:15–17:12, 24:4–27:26. With this fully developed

record, we reconsider the definition of a person of ordinary skill. The factors influencing the proper definition of a person of ordinary skill include: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

With a complete record, we discern several problems with Patent Owner’s definition. The first problem with Patent Owner’s definition is the inclusion of the term “high-lift tailgates,” which is not found in the ’105 patent. *See* Tr. 14:21–16:3 (Patent Owner’s counsel acknowledging that “high-lift tailgate” is not found in the ’105 patent). We decline to require such narrow expertise in a subject not discussed in the challenged patent. The prior art of record suggests that a person of ordinary skill would have experience with a wide variety of types of dump trucks and dump bodies. *See, e.g.*, Ex. 1001, 1:13–62; Ex. 1003; Ex. 1004; Ex. 1006. Thus, based on our review of the prior art of record, we disagree with Patent Owner that a person of ordinary skill would be so narrowly limited to only “dump bodies with high lift tailgates.” The second problem with Patent Owner’s definition is that the named inventor, Mr. Gregg Kennedy, does not have experience with designing dump bodies as required by Patent Owner’s definition. *See* Tr. 16:5–17:12 (acknowledging that Mr. Kennedy would not meet Patent Owner’s definition). Although not dispositive, we find the fact that the named inventor would not meet Patent Owner’s definition of the ordinarily skilled artisan suggests that it is not correct. *See Daiichi Sankyo*, 501 F.3d at

1256 (listing the level of skill of the inventor to be one of the factors to consider).

We also note that the patent has only very limited discussion of dump bodies and their design, and the record suggests that the field of dump body design was well-developed, mature, and broad as of the invention. *See* Ex. 1001, 1:13–62. For example, Figure 3 of the Martin reference from 1973 is very similar to Figure 1 of the '105 patent. Ex. 1003, Fig. 1; Ex. 1001, Fig. 1. Indeed, the '105 patent states that “[t]his invention relates *in general* to mechanisms for raising and lowering a tailgate provided on a dump box of a dump truck, trailer, *or similar vehicle*.” Ex. 1001, 1:13–15 (emphases added). Moreover, when describing the cylinders, the '105 patent states that the cylinders are “conventional” and their operation is “well known.” *Id.* at 3:4–17, 3:52–55. Additionally, the '105 patent states that “this invention may be practiced otherwise than as specifically explained and illustrated without departing from its spirit and scope.” *Id.* at 4:40–43. Martin, which issued in 1973, also states that “[f]or many years, dump trucks have been provided with tailgates which have been pivotally connected to the rear end of the truck body, either at a level adjacent the bed of the body, or adjacent the upper ends of the sides of the body.” Ex. 1003, 1:5–9 (emphasis added). Martin cites to a number of references showing dump truck tailgates dating back to 1941. *Id.* at 1:63–68. These statements suggest a broad, mature field where the basic principles were well known and established, and that the extremely high level of very narrow skill level that Patent Owner seeks to require is not correct.

Furthermore, we find persuasive the testimony of Mr. Raymond that in the field of heavy duty trucks and parts generally, and dump trucks/dump bodies specifically, I am aware that many

innovations in this industry were created by individuals with no formal education in engineering and could be considered “empirical.” These ideas, however, required engineers to verify and implement to production.

Ex. 1012 ¶ 26. This is consistent with the level of detail described in the Background of the Invention of the ’105 patent. *See* Ex. 1001, 1:13–62. It is also consistent with the testimony of Mr. Vince Williams, who described that the genesis for the invention of the ’105 patent came from a customer who communicated the limitations of existing mechanisms to the named inventor. Ex. 2006 ¶¶ 2, 3. This testimony suggests that Mr. Raymond is correct that, in this industry, ideas come from a variety of sources and participants. In contrast, Mr. Hogins’s testimony merely states a conclusion and does not provide any details to warrant giving significant weight to his testimony on this point. *See* Ex. 2001 ¶¶ 33–35.

We do agree with Mr. Hogins’s and Patent Owner’s criticism that the definition requires slightly more specificity than Petitioner proposes. *See id.* ¶ 35. To meet those concerns, based on the prior art of record, we modify Petitioner’s definition slightly to require five years of experience and remove the “and/or” included in the definition. Accordingly, we find that a “person of ordinary skill in the art”—“would have had at least five years of practical academic or industrial experience designing, testing, manufacturing, selling or servicing dump trucks or dump bodies with, or supported by, a person with, a bachelor of science in a field of engineering or a closely related discipline.” *See* Ex. 1012 ¶¶ 25–26; *see also Daiichi Sankyo*, 501 F.3d at 1256. We note that we would reach the same results below under Patent Owner’s definition.

B. CLAIM INTERPRETATION

We interpret claims using the same standard used in a civil action under 35 U.S.C. § 282(b), “including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). When applying that standard, we interpret the claim language as it would be understood by one of ordinary skill in the art in light of the specification. *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010). Thus, we give claim terms their ordinary and customary meaning as they would be understood by an ordinarily skilled artisan. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning ‘is the meaning that the term would have to a person of ordinary skill in the art in question.’” (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005))). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Petitioner contends the “either/or” language of claims 1 and 11 should be construed to require only one of limitations (1) or (2), not both. Pet. 13. Patent Owner agrees with this construction. PO Resp. 6. Accordingly, other than agreeing with the parties’ positions, we determine no construction of this term is necessary for our analysis.

In its Response, Patent Owner proposed a construction for the language “double cylinder assembly,” which appears in claims 1–6, 10–16, and 20. PO Resp. 6–7; Sur-Reply 1–4. Patent Owner argues that the “ordinary and customary meaning of double cylinder assembly as disclosed

and claimed in the '105 Patent and as understood by a person having skill in the art is two matching, hydraulic- or pneumatic-actuated cylinders conventional in the art of dump box design, fastened together to form a single unit to transfer the forces produced by the two cylinders and create one longitudinal axis of thrust.” PO Resp. 6–7 (citing Ex. 2005 ¶ 108).

Petitioner takes the position that no construction of this term is necessary and we agree. Reply 1–3. Beginning with the claim language, on its face, we see no ambiguity that requires construction. The term “double cylinder assembly” is a clear, plain English phrase that would, on its face, mean a two-cylinder assembly. Moreover, this language within the context of the full claim limitation in claim 1 recites that

the double cylinder assembly includes first and second cylinders that are disposed adjacent to one another, each of the first and second cylinders has a respective piston rod associated therewith, the piston rods are connected to a cross bar for concurrent extending and retracting movement, and the cross bar is connected to a yoke that, in turn, is connected to the tailgate of the dump box.

Ex. 1001, 4:57–63. As can be seen, the claim already recites details similar to many of Patent Owner’s proposed requirements. For example, the claim already requires the cylinders be “disposed adjacent to one another” and that they “are connected to a cross bar for concurrent extending and retracting movement.” *Id.* The claim also already expressly recites where the assembly must be located in the dump truck and what type of action the double cylinder assembly performs. *Id.* Thus, Patent Owner’s requirements that the cylinders be “fastened together to form a single unit to transfer the forces produced by the two cylinders and create one longitudinal axis of thrust” seem to seek to narrow the broader language already found elsewhere

in the claim. *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016) (“Construing a claim term to include features of that term already recited in the claims would make those expressly recited features redundant.”). Moreover, because the claim language is written in simple, clear descriptive language, we do not discern any ambiguity that would benefit from construction. Thus, the claim language suggests that Patent Owner’s construction is not likely correct.

Reviewing the specification further supports not adopting Patent Owner’s construction. We do not discern that the specification anywhere describes the claimed cylinders as “matching” or “fastened together.” *See generally* Ex. 1001. Thus, the specification does not support adding such limitations to the claim. As for Patent Owner’s proposed requirement that the “double cylinder assembly” must be a “single unit,” the specification describes the assembly as “generally rectangular in shape when viewed from each end thereof,” *id.* at 3:63–65, but it does not expressly require that it be “a single unit,” or even use the phrase “a single unit,” which suggests that such a limitation should not be imported into the claim. And, although the specification does describe a preferred embodiment where “[t]he first and second cylinders 41 and 42 are, of themselves, conventional in the art and may be embodied as hydraulically or pneumatically actuated cylinders,” *id.* at 3:52–55, this statement does not limit the cylinders to any particular type, so we decline to read into the claims any requirement that the cylinders be “hydraulic- or pneumatic-actuated cylinders conventional in the art of dump box design.” The specification also does not discuss “one longitudinal axis of thrust,” and, although the double cylinder assembly in the preferred embodiment may provide such thrust, that would appear to be a product of

where the double cylinder assemblies are placed in the dump truck, not a property of the double cylinder assembly by itself. *See generally id.*

Finally, in its Sur-Reply, Patent Owner argues the “[t]he term ‘double cylinder assembly’ is most certainly defined in the ’105 Patent.” Sur-Reply 1 (citing Ex. 1001, 3:45–65). We disagree that the ’105 patent “defines” double cylinder assembly. “To act as its own lexicographer, a patentee must ‘clearly set forth a definition of the disputed claim term’ other than its plain and ordinary meaning.” *Thorner v. Sony Computer Entertainment Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). “It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must ‘clearly express an intent’ to redefine the term.” *Id.* We see no such clear intent, nor does Patent Owner identify it, in column 3, lines 45–65, of the ’105 patent. Thus, there is no support in the specification for importing Patent Owner’s proposed limitations into the otherwise clear claim term “double cylinder assembly.”

Patent Owner relies on the testimony of its expert to support its construction. PO Resp. 7. Although we are permitted to consider extrinsic evidence (e.g., expert testimony, dictionaries, treatises), such evidence is generally of less significance than the intrinsic record. *Phillips*, 415 F.3d at 1317 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). The Federal Circuit has explained that “[i]f the meaning of a claim term is clear from the intrinsic evidence, there is no reason to resort to extrinsic evidence.” *Seabed Geosolutions (US) Inc. v. Magseis FF LLC*, 8 F.4th 1285, 1287 (Fed. Cir. 2021). Here, as we have explained, the claim term “double cylinder assembly” is clear from the detail within the claims

themselves, and Patent Owner’s proposed limitations are redundant and conflict with the language already used in the claim. The specification also indicates that Patent Owner’s proposed construction improperly limits the scope of the claim by either importing limitations from a preferred embodiment or importing limitations not even described or mentioned in the specification. Moreover, Mr. Hogins’s testimony regarding this construction (Ex. 2005 ¶ 108) provides no analysis or explanation to support its conclusions, so we give it little weight. Thus, we find that, here, reliance on expert testimony would be improper. Accordingly, we determine that no construction is necessary of the term “double cylinder assembly.”

We discern no other terms in need of express interpretation. Accordingly, we apply the legal standards set forth above when reading the claims.

C. THE PARTIES’ POST-INSTITUTION ARGUMENTS

In our Institution Decision, we concluded that the argument and evidence adduced by Petitioner demonstrated a reasonable likelihood that at least one challenged claim was unpatentable. Dec. 32. We must now determine whether Petitioner has established by a preponderance of the evidence that the challenged claims are unpatentable over the cited prior art. 35 U.S.C. § 316(e). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800

F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burdens of proof in *inter partes* review).

We previously instructed Patent Owner that “any arguments not raised in the [Patent Owner Response] may be deemed waived.” Paper 8, 8; *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (holding that patent owner’s failure to proffer argument at trial as instructed in scheduling order constitutes waiver). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Consolidated Trial Practice Guide (“CTPG”) 66 (Nov. 2019).⁷

D. LEGAL STANDARDS

The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), reaffirmed the framework for determining obviousness as set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* that we apply in determining whether a claim is unpatentable as obvious under 35 U.S.C. § 103(a) as follows: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, (3) resolving the level of ordinary skill in the pertinent art, and (4) when in evidence, considering objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17–18). In an *inter partes* review, Petitioner cannot satisfy its burden of proving

⁷ Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord Translogic*, 504 F.3d at 1259. Petitioner also must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *NuVasive*, 842 F.3d at 1382.

E. OVERVIEW OF THE PRIOR ART

1. *Stoll (Ex. 1005)*

Stoll is titled “A Pneumatically Operated Machine Tool Advancing Device.” Ex. 1005, [54]. *Stoll* indicates on its face that it was published on November 18, 1970; it is not disputed that *Stoll* is prior art to the claims of the ’105 patent. *Id.* at code [45].

Stoll discloses the advancing device includes “a brake cylinder containing hydraulic oil or other viscous brake fluid, and two pneumatic work cylinders located on opposite sides of the brake cylinder, the longitudinal axes of the work cylinders being arranged in the same plane as the axis of the brake cylinder.” *Id.* at 1:13–31. The device is preferably used in conjunction with processing machines, such as machine-tools. *Id.* at 1:42–45.

A side-view of the advancing device is shown in Figure 1, reproduced below.

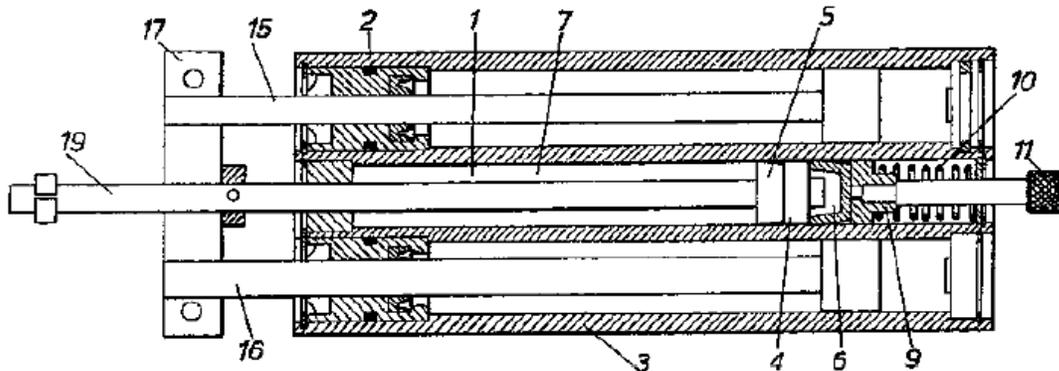


Figure 1 shows two pneumatic work-cylinders 2 and 3, which are mounted symmetrically to one another with reference to the longitudinal axis of brake-cylinder 1, with their longitudinal axes on the same plane as that of the brake-cylinder, and the three cylinders being combined into a single unit, and housed in a common casing. *Id.* at 1:73–82. The illustrated mechanism is constructed so that brake piston 4, on its movement in either direction in cylinder 1, forces the brake-fluid from compressed space 6 or 7 through a throttle-point into the respective space 7 or 6. *Id.* at 1:61–68. Piston rods 15 and 16 of both work-cylinders 2 and 3 are connected by cross-rod 17. *Id.* at 2:8–18.

Stoll describes that the advancing device is advantageous in that it is of “particularly low constructive height, as two smaller work-cylinders can be used instead of one large one, if at the outset the same piston surface, i.e.,] the same piston-power is desired,” which “[o]verall, a compact, space-saving arrangement with smooth outer surfaces results.” *Id.* at 2:59–75.

2. Weber (*Ex. 1007 – Original German in Ex. 1006*)

Weber is titled “Lifting and Pivoting Device for a Liftgate on a Truck.” *Ex. 1007*, [54]. Weber indicates on its face that it was published on January 25, 1995; there is no dispute that Weber is prior art to the claims of the ’105 patent. *Id.* at code [43].

Weber's disclosed device "has lift arms linked to the liftgate, which are linked at their other ends to a mount on the chassis, and has lifting cylinders dedicated to the lift arms, and closing cylinders that engage with the liftgate at a spacing to the lift arm pivot point." *Id.* at 2:1–5. Weber describes that the

object of the invention is to improve a device of the type specified above with respect to load-bearing capacity, strength, and torsional strength, etc. with an optimal use of the available space on the vehicle, while retaining the beneficial strength/weight ratio characteristic of aluminum structures. This object is achieved with a device of the type specified above, which is distinguished in that there are at least two lift arms, two lifting cylinders, and two closing cylinders of the same size on both sides of the vehicle.

Id. at 2:13–22. Thus, "optimal use is made of the available space on the vehicle, wherein an arbitrary load-bearing capacity of the liftgate can be obtained, and the production costs can be kept low by using relatively small casting molds." *Id.* at 2:23–27.

Figure 2 of Weber is reproduced below.

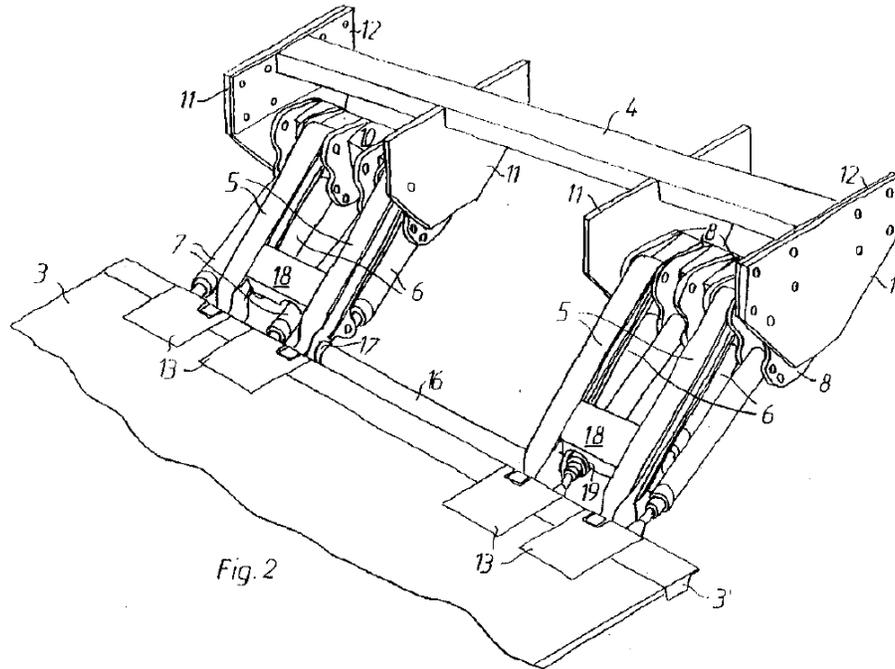


Figure 2 shows lift arms 5, dedicated lifting cylinders 6, and closing cylinder 7. *Id.* at 3:22–24. The paired lift arms 5 on each side of the vehicle are also rigidly connected to one another via a respective connecting profile 18. *Id.* at 4:19–21.

3. *Martin (Ex. 1003)*

Martin is titled “Dump Truck Tailgate Actuator.” Ex. 1003, [54]. On its face, *Martin* indicates it issued on January 14, 1975; it is not disputed that *Martin* is prior art to the claims of the ’105 patent. *Id.* at code [45].

Martin discloses dump trucks with tailgates that pivot from the top by gravity, and are secured at the bottom by manually-operated latches. *Id.* at 1:5–25. *Martin* describes shortcomings of this design, including the inability to control the opening space of the gravity-controlled tailgate, and damage from objects larger than the opening hitting the tailgate. *Id.* at 1:28–52.

Martin thus discloses a tailgate lifted by hydraulic cylinder units at the edges of the tailgate. *Id.* at 2:30–48. Figure 1, reproduced below, shows a dump truck with Martin’s powered tailgate.

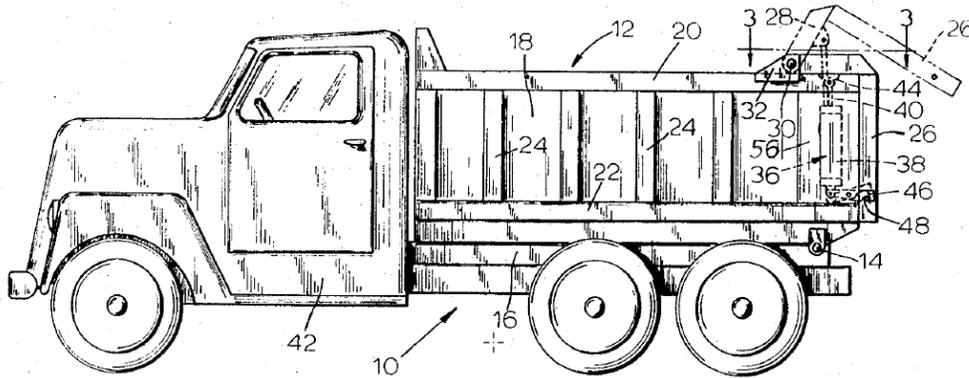


Figure 1 shows truck 10 from a side view, having a body 12 with tailgate 26, where tailgate 26 is shown both in closed position and in ghost-outline in a raised position, and also shown are tailgate mounting arm 28, connecting pin 30, and power unit 36 comprising cylinder 38 and piston rod 40, which are each associated with tailgate 26 and indicated to raise and lower the same. *Id.* at 3:28–4:16. Figure 5, reproduced below, is a close-up view showing the enclosure for the power units shown in Figure 1.

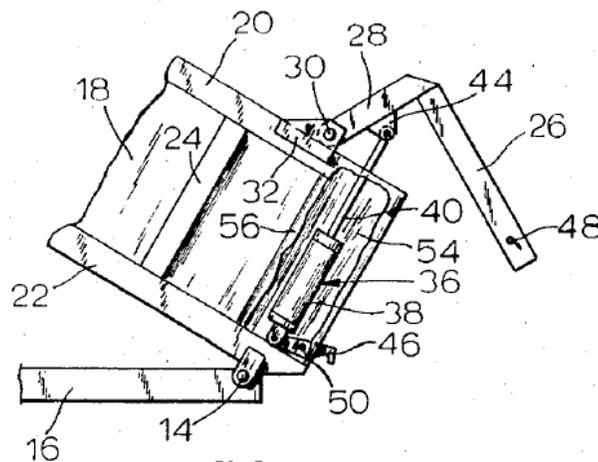


Figure 5, illustrating truck 10 with its body 12 (not labeled) in a raised position, pivoted at connection 14, where tailgate 26 is also raised, shows power unit 36 in compartment 54, where

The power units preferably are enclosed within suitable compartments 54 formed from sheet metal which are rectangular in cross section, the outer sides 56 of said compartments either being spaced outwardly from the sides 18 of the truck body 12 a sufficient distance to readily accommodate the diameters of the cylinders 38 or, as shown in FIG. 3, as an exemplary alternative, suitable housing members 58 may extend inwardly a slight distance beyond the sides 18 of truck body 12.

Id. at 4:50–58.

4. *Biddy (Ex. 1004)*

Biddy is titled “Material Handling Vehicle With Improved Tailgate.” *Ex. 1004*, [54]. *Biddy* indicates it issued on February 5, 1991; it is not disputed that *Biddy* is prior art to the claims of the ’105 patent. *Id.* at code [45].

Biddy relates “to material handling vehicles having a material container pivotably mounted to a frame and a tailgate mounted to the open rear end of the material container.” *Id.* at 1:6–10. *Biddy* describes material-handling vehicles with pivoting tailgates, non-pivoting tailgates that can be raised, and tailgates that are partially non-pivoting and partially pivoting. *Id.* at 1:30–56. *Biddy* describes the disadvantage of these as “limited function,” because “[e]ach vehicle is constructed to provide only one means of discharge, i.e. either a controlled metering of discharged refuse or other aggregate material contained within the material container, or a less controlled, quicker discharge of material which is facilitated by an outwardly pivoting tailgate, such as a dump truck.” *Id.* at 1:57–64.

Figure 2 of Bidy, reproduced below, shows “a side view of the material handling vehicle showing the front end of the material container lifted and the tailgate in a fully raised position so that the tailgate is free to swing outwardly.” *Id.* at 2:52–55.

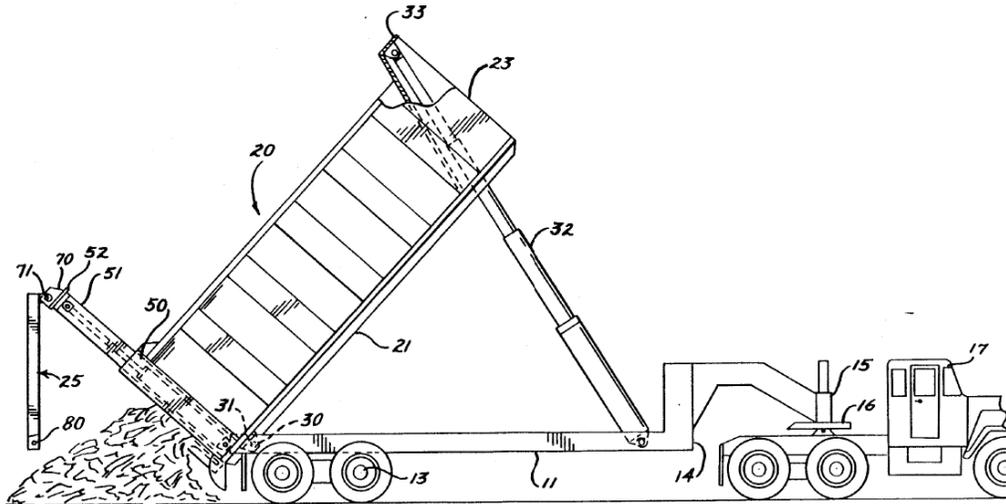


Figure 2 shows vehicle 10 (not labeled) having cab 17 and towed frame 11 with material container 20, and tailgate 25 in “a fully raised position where the tailgate is free to swing outwardly.” *Id.* at 3:37–4:7.

A vertically disposed reinforcement member in the form of a rectangularly configured open box sleeve 50 is positioned at each of the side walls of the material container, adjacent the rear end of the material container. *Id.* at 4:10–14. A substantially square longitudinal hollow post 51 is slidably received in each box sleeve 50, and hydraulic cylinder 60 is contained within each box sleeve 50 and post 51. *Id.* at 4:40–41. Figure 4, reproduced below, illustrates this arrangement.

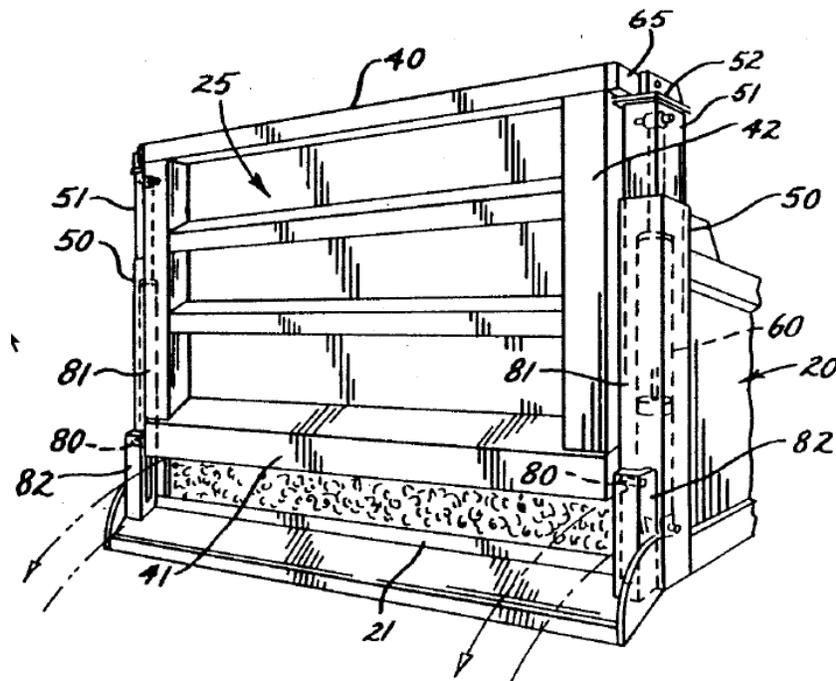


Figure 4 shows material container 20, box sleeve 50, hollow container 51, and cylinder 60. *Id.* at 4:10–41.

F. WEIGHT TO GIVE EXPERT TESTIMONY

Patent Owner argues that Mr. Raymond lacks the requisite experience and we should give little weight to his testimony. PO Resp. 39–43; Sur-Reply 17–19. We disagree.

“The Board has broad discretion to assign weight to be accorded expert testimony.” CTPG 35. Mr. Raymond has a Bachelor of Mechanical Engineering and nearly forty years of experience working for and running his own company, Parts for Trucks, which is “a distributor of replacement parts for heavy duty vehicles and supplier and installer of truck-mounted equipment, including dump bodies and hoists.” Ex. 1013, 1; Ex. 1012 ¶¶ 1, 2. While at Parts for Trucks, Mr. Raymond managed a repair and installation facility including installation of dump bodies and hoists, he “[s]old and dealt directly with customers and vendors for a range of truck-

mounted equipment, specializing in dump bodies and hoists,” and participated in a wide range of groups related to the dump truck industry. Ex. 1013, 1–2; Ex. 1012 ¶¶ 3, 4. We find this experience to be more than sufficient to meet the level of skill in the art under the definition we have adopted for purposes of this opinion. Thus, we decline Patent Owner’s request that we wholesale disregard Mr. Raymond’s testimony.

Instead, for both Mr. Raymond and Mr. Hogins, we consider each of their opinions, we compare their opinions to the disclosures of the prior art references and the challenged patent, and the entirety of the evidence of record to weigh each part of their testimony separately. *See Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1358 (Fed. Cir. 2018) (“The [Patent Trial and Appeal Board (‘PTAB’)] [i]s entitled to weigh the credibility of the witnesses.” (citation omitted)); *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1041 (Fed. Cir. 2017) (“To the extent [a party] challenges the PTAB's factual findings, ... the PTAB is permitted to weigh expert testimony and other record evidence and, in so doing, rely on certain portions of an expert’s declaration while disregarding others.”).⁸

⁸ We also note the simplicity of the combination and the art, and would reach the same conclusion with or without Mr. Raymond’s testimony. As the Federal Circuit explained in *Belden Inc. v. Berk–Tek LLC*, “[n]o rule requires . . . an expert [to] guid[e] the [PTAB] as to how it should read prior art.” 805 F.3d 1064, 1079 (Fed. Cir. 2015). And PTAB “members, because of expertise, may more often find it easier to understand and soundly explain the teachings and suggestions of prior art without expert assistance.” *Id.*

G. OBJECTIVE INDICIA OF NONOBVIOUSNESS

Petitioner alleges that challenged claims would have been obvious to a person of ordinary skill in the art. We make our determination of patentability based on the entirety of the evidence before us, both for and against obviousness. Notwithstanding what the teachings of the prior art would have suggested to one skilled in the art, objective evidence of non-obviousness (so called “secondary considerations”) may lead to a conclusion that the challenged claims would not have been obvious. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Objective evidence of non-obviousness “may often be the most probative and cogent evidence in the record” and “may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983)). We review the evidence of nonobviousness submitted by Patent Owner and, with that in mind, we consider Petitioner’s contentions based on the prior art references and the level of ordinary skill in the art. Patent Owner alleges there is evidence of record supporting the objective indicia of nonobviousness of commercial success, copying, and licensing. PO Resp. 42–51. We consider Patent Owner’s proffered evidence below.

1. Nexus

For us to give substantial weight to objective indicia of nonobviousness, a proponent must establish a nexus between the evidence and the merits of the claimed invention. *ClassCo, Inc., v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). Nexus is a legally and factually sufficient connection between the objective evidence and the claimed invention, such

that the objective evidence should be considered in determining non-obviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). “[T]here is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *ClassCo*, 838 F.3d at 1220 (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)). A patentee is entitled to a presumption of nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). The Federal Circuit has held that “if the marketed product embodies the claimed features, and is coextensive with them, then a nexus is presumed and the burden shifts to the party asserting obviousness to present evidence to rebut the presumed nexus.” *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000). “Ultimately, the fact finder must weigh the [objective indicia] evidence presented in the context of whether the claimed invention as a whole would have been obvious to a skilled artisan.” *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 33 (PTAB Jan. 24, 2020) (precedential) (citing *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331–32 (Fed. Cir. 2016)).

Patent Owner argues that it manufactures and sells double cylinder assemblies. PO Resp. 44; Sur-Reply 19–20. Patent Owner contends that “[t]hese assemblies are installed in its customers’ dump bodies with high lift tailgates consistent with the ‘105 Patent.” *Id.* (citing Ex. 2006 ¶ 7). However, the cited portion of Mr. Williams’s declaration merely states

“[t]he ’105 patent lifting mechanism sold by [Patent Owner] does not have substantial use other than its use in raising and lifting a high lift tailgate of a dump body.” Ex. 2006 ¶ 7. This testimony does not explain how the assemblies are installed or how they “are consistent with the ’105 Patent” as Patent Owner contends. This evidence falls far short of showing that Patent Owner’s “product ‘embodies the claimed features, and is coextensive with them.” *Fox Factory*, 944 F.3d at 1373.

At the very least, we fail to see how a double cylinder assembly by itself is “coextensive” with claims for an apparatus including a “dump body” (claim 1) and a claim for a “vehicle” (claim 11). As the Federal Circuit explain in *Kohler*, the patentee is entitled to a presumption of a nexus “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘is the invention disclosed and claimed in the patent.” 829 F.3d at 1331–32. Patent Owner has failed to do so here. Accordingly, we find that Patent Owner has failed to show that it is entitled to a presumption of a nexus between its double cylinder assemblies and the claimed invention.

“A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations”; rather, “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.” *Fox Factory*, 994 F.3d at 1374 (quoting *In re Huang*, 100 F.3d 125, 140 (Fed. Cir. 1996)). Here, we find that Patent Owner presents insufficient evidence to establish a nexus by this alternative route. Patent Owner presents only that its double cylinder assemblies “does not have a substantial use other than its use in raising and lifting a high lift

tailgate in a dump body.” Ex. 2006 ¶ 7. However, without more information about the state of the market and what motivates consumers in this market, we find that this conclusory statement is insufficient to establish a nexus between the evidence presented and the claimed invention. The failure to show a nexus is fatal to Patent Owner’s contentions regarding secondary considerations, but in the interest of completeness we consider each piece of Patent Owner’s evidence.

2. *Commercial Success*

Commercial success is typically shown with evidence of “significant sales in a relevant market.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006) (citation omitted). “When a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent, it is presumed that the commercial success is due to the patented invention.” *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997).

Patent Owner contends “Sales of Patent Owner’s products covered by the ‘105 Patent, including but not limited to Model No. C-6224-PK-M, have increased in volume by a factor of approximately 16.8 times from its first sale in 2007 to present (2020).” PO Resp. 45 (citing Ex. 2006 ¶ 9). Patent Owner submits that it “sells cylinder products to be utilized pursuant to the ‘105 Patent to numerous prominent dump body manufacturers.” *Id.* (citing Ex. 2006 ¶ 11). Patent Owner also asserts that “the market relating to high lift gates for dump bodies is specialized,” but it estimates that its “sales for these products are several thousand units annually and are continuing to

exceed \$1 million annually, exclusive of parts and related products.” *Id.* (citing Ex. 2006 ¶ 11); Sur-Reply 20–21.

We agree with Petitioner that, even if Patent Owner had shown a nexus (which it has not), Patent Owner’s evidence of commercial success is entitled to little weight. Here, Patent Owner has asserted commercial success through generalized and vague testimony of a single employee, and failed to provide detailed information or supporting evidence as to, for example, the actual sales quantity or value, market share, and other information that would substantiate the employee’s conclusory testimony. Patent Owner has only identified one product, but includes at least four to six additional products in estimate that “sales for these products are several thousand units annually and are continuing to exceed \$1 million annually, exclusive of parts and related products.” Reply 19–20; Ex. 1015, 23:6–20; Ex. 1016. The most exact figure Patent Owner provides us is that “[s]ales of [Patent Owner’s] products covered by the ’105 Patent . . . have increased in volume by a factor of approximately 16.8 times from 2007 to 2020.” Ex. 2006 ¶ 9. However, it is unclear whether this is in unit volume, dollar volume, or both. Without more detailed information, it is difficult to give much weight to this “factor”—was the increase driven by an increase in price or a decrease in price. We cannot tell.

We agree with Petitioner that the probative value of Patent Owner’s evidence is further impaired because there is no data to assess the market share of Patent Owner’s double cylinder assemblies to other competing products. *See In re Applied Materials, Inc.*, 692 F.3d 1289, 1300 (Fed. Cir. 2012). In particular, this information would be helpful because the record shows that Patent Owner sells many different cylinder assemblies for high

lift tailgates, and the double cylinder models that APSCO sells (between four and six) makes up a small fraction of the total number of models that APSCO sells as part of its “Highlift Series” of cylinder assemblies for high lift tailgates. Ex. 1015, 23:6–24, 24:12–19; Ex. 1016. If, for example, the sales of the alleged covered products are dwarfed by competing products, then it would suggest a lack of commercial success. Given these deficiencies, we find that, even if Patent Owner had shown a nexus, the evidence provided for commercial success is entitled to little weight.

3. Copying

“Copying may indeed be another form of flattering praise for inventive features.” *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1311 (Fed. Cir. 2010). Copying “requires evidence of efforts to replicate a specific product.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010). “This may be demonstrated either through internal documents; direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a virtually identical replica; or access to, and substantial similarity to, the patented product (as opposed to the patent).” *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004) (internal citations omitted). However, “[e]ven in cases involving claims directed to a product, access to an issued patent coupled with circumstantial evidence regarding changes to a competitor’s design is sufficient to support copying.” *Liqwd, Inc. v. L’Oreal USA, Inc.*, 941 F.3d 1133, 1138 (Fed. Cir. 2019) (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1328–29 (Fed. Cir. 2009)). “We note, however, that a showing of copying is only equivocal evidence of non-obviousness in the absence of more compelling objective indicia of

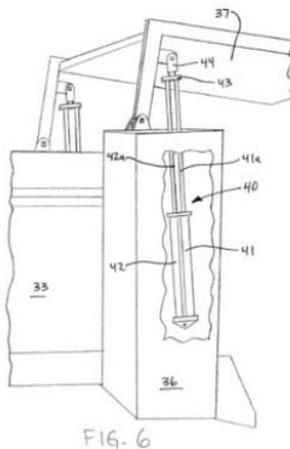
other secondary considerations.” *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1380 (Fed. Cir. 2000); *see also In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995) (“[M]ore than the mere fact of copying by an accused infringer is needed to make that action significant to a determination of the obviousness issue.” (quoting *Cable Elec. Prods. v. Genmark, Inc.*, 770 F.2d 1015, 1028 (Fed. Cir. 1985))).

Patent Owner contends that “Petitioner’s double cylinder assembly meets each of the ‘105 Patent claim limitations, such as claim 1.” PO Resp. 46 (citing Ex. 2005, ¶ 125, 135); Sur-Reply 21–22. Patent Owner argues that “in comparing Patent Owner’s double cylinder assembly to Petitioner’s double cylinder assembly, it is difficult to determine one from the other.” PO Resp. 46. Patent Owner also compares drawings from the ‘105 Patent and of Patent Owner’s double cylinder assembly with “drawings and information found on Petitioner’s parts catalog website (Internal Air High Lift).” *Id.* Patent Owner argues that “a direct comparison can quickly be made between the two double cylinder assemblies.” *Id.* (citing Ex. 2005 ¶ 126).

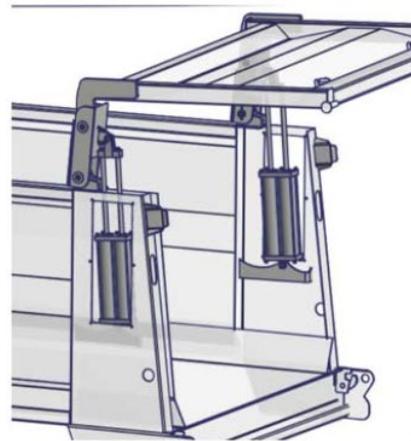
We do not find Patent Owner’s efforts to compare figures from Petitioner’s product catalog to the figures of the ‘105 patent to be probative of copying. Normally, copying requires evidence of “access to, and substantial similarity to, the patented product (as opposed to the patent).” *Iron Grip*, 392 F.3d at 1325. Patent Owner has not shown that. Nor has Patent Owner shown access to the published patent or “circumstantial evidence regarding changes to a competitor’s design.” *Liqwd*, 941 F.3d at 1138. At best, Patent Owner shows that Petitioner could have searched for

the '105 patent, but presents no evidence that Petitioner had actual access to the '105 patent.

Patent Owner also has not shown any changes to Petitioner's product that would indicate copying. Again, Patent Owner's only evidence are superficial similarities between Petitioner's product catalog and the figures of the '105 patent. PO Resp. 46. Moreover, even considering the comparison, we find that there are significant differences between the figures in the patent and figures in the catalog. We reproduce the side-by-side comparison of Figure 6 of the '105 patent and a drawing from Petitioner's catalog.



'105 Patent Figure



Beau-Roc's Catalog

Patent Owner provides the above side-by-side comparison of Figure 6 of the '105 patent with a drawing from Petitioner's product catalog. PO Resp. 48. Patent Owner's contentions that "[w]ithout knowledge of where the above images originated, it would be impossible to determine one from other," *id.*, are not persuasive. Indeed, both these figures bear a resemblance to the figures of the Martin patent from 1973 reproduced above. *See supra* pp. 21. Although the drawings represent similar simple mechanical devices, we do

not agree with Patent Owner that they are indistinguishable. For instance, Petitioner's drawing in the Beau-Roc Catalog shows both sets of cylinders and the interior of the dump bed, and the brackets that attach the yoke for the cylinders to the lift gate differ significantly between the two drawings as well as the drawings of the cylinders themselves. We decline to conclude copying based on some similarity between simple mechanical drawings.

As for Patent Owner's comparison between one of its double cylinder assemblies and Petitioner's catalog, this evidence fails for a number of reasons. PO Resp. 49–50. Patent Owner argues that “[u]pon a close inspection, the details of the Patent Owner double cylinder assembly of the ‘105 Patent are clearly the same in [Petitioner’s] design.” *Id.* at 48–49. However, the claims of the ‘105 patent are directed to a dump truck, not just a double cylinder assembly. *See* Ex. 1001, claims 1, 11. At best, Patent Owner offers evidence of superficial similarities (the number of screws, the width of the cylinders) between Patent Owner's double cylinder assembly, a component of the patented invention, and the drawing from the catalog. There is no comparison to Petitioner's actual product, and there is no actual evidence that Petitioner sought to replicate Patent Owner's double cylinder assembly—which is only a component of the patented invention. We find Patent Owner's evidence of copying is simply too speculative to be probative of nonobvious and give it little weight.

4. Industry Praise

Praise from industry participants, especially competitors, is probative as to obviousness because such participants “are not likely to praise an obvious advance over the known art. Thus, if there is evidence of industry praise of the claimed invention in the record, it weighs in favor of the non-

obviousness of the claimed invention.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1053 (Fed. Cir. 2016) (en banc).

Patent Owner argues that “Petitioner has touted and prominently displayed its copy of Patent Owner’s patented double cylinder assemblies. For example, Petitioner featured the double cylinder assembly at the NTEA Heavy Truck Show which was held in Indianapolis, Indiana during March 5-8, 2019.” PO Resp. 50. Patent Owner asserts that “[o]ver 14,000 industry professionals from 28 countries attended this show. This is North America’s largest work truck event and is where Patent Owner first learned of Beau-Roc’s infringement of the ‘105 Patent and its copying of Patent Owner’s commercial embodiment.” *Id.* at 50–51 (citing Ex. 2006 ¶ 16; Ex. 2009). Patent Owner contends that as shown in Exhibit 2009, Petitioner “was touting and prominently displaying its copy of Patent Owner’s patented double cylinder assemblies.” *Id.* at 51.

We find that Patent Owner has not shown any significant evidence of industry praise. Patent Owner’s evidence consists of the fact Petitioner displayed a product that Patent Owner contends copied the claimed invention at a major industry show. However, there is no evidence that Petitioner actually touted this feature or specifically mentioned it. Moreover, as we found above, Patent Owner has not shown that Petitioner copied Patent Owner’s invention. Thus, we find that Patent Owner’s evidence that Petitioner allegedly “was touting and prominently displaying its copy of Patent Owner’s patented double cylinder assemblies,” PO Resp. 50, is not probative of the nonobviousness of the claimed invention.

5. *Licensing*

Courts “specifically require affirmative evidence of nexus where the evidence of commercial success presented is a license, because it is often ‘cheaper to take licenses than to defend infringement suits.’” *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004) (quoting *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 908 (Fed. Cir. 1985)). The Federal Circuit has explained that “[w]hen the specific licenses are not in the record, it is difficult for the court to determine if ‘the licensing program was successful either because of the merits of the claimed invention or because they were entered into as business decisions to avoid litigation, because of prior business relationships, or for other economic reasons.’” *In re Cree, Inc.*, 818 F.3d 694, 703 (Fed. Cir. 2016) (quoting *In re Antor Media Corp.*, 689 F.3d 1282, 1294 (Fed. Cir. 2012)).

Patent Owner argues that

After being advised by Patent Owner of the ‘105 Patent in the 2017, general time frame, three dump body manufacturers that were not existing Patent Owner customers began purchasing pneumatic cylinder assemblies from Patent Owner for use in the patented high lift tailgate mechanism, such that they each effectively licensed the ‘105 Patent pursuant to the doctrine of patent exhaustion.

PO Resp. 51 (citing Ex. 2006 ¶ 12); Sur-Reply 23.

We agree with Petitioner that Patent Owner’s sales of products are not the type of “license” that informs on the issue of nonobviousness. Reply 24. But even if the sales of products after being advised of the existence of a patent, was a type of “licensing” that is probative of nonobviousness, we find Patent Owner’s evidence too weak to be entitled to any weight. At best, Patent Owner contends that in 2017, it communicated something about the

'105 patent to these dump body manufacturers—neither Patent Owner nor Mr. Vince Williams, Patent Owner's witness, tells us what exactly—and these dump body manufacturers began purchasing some amount—we again are not provided any details—of double cylinder assemblies. *See* Ex. 2006 ¶ 12; Ex. 1014, 27:8–33:5 (Williams's cross examination testimony regarding the alleged licensing). There are no licenses in the record, no evidence of why these three unnamed customers began the purchasing products from Patent Owner, no evidence of the amount of purchases they are or were making, and no evidence of the terms of those purchases. As the Federal Circuit has explained, “[t]he significance of licensing a patent as a secondary consideration in enhancing the nonobviousness of an invention is that an independent party with an interest in being free of the patent has chosen to respect it and pay a royalty under it rather than litigate and invalidate it.” *Teva Pharm. Int'l GmbH v. Eli Lilly & Co.*, 8 F.4th 1349, 1363 (Fed. Cir. 2021).

Here, we are left to speculate why these companies began purchasing the product, and there is no way for us to determine if “the licensing program was successful either because of the merits of the claimed invention or because they were entered into as business decisions to avoid litigation, because of prior business relationships, or for other economic reasons.” *Antor Media*, 689 F.3d at 1294. Accordingly, we find this evidence to not be probative of whether the challenged claims are nonobvious and to be entitled to no weight.

6. Summary of Objective Indicia of Nonobviousness⁹

In summary, we find that Patent Owner has failed to show a nexus between the objective evidence offered and the claimed invention. Moreover, we find that, even if Patent Owner had shown a nexus, the evidence presented is entitled to little weight. With these findings regarding the objective evidence in mind, we now turn to the evidence and argument regarding the remaining *Graham* factors in evaluating Petitioner’s obviousness challenges.

H. OBVIOUSNESS OVER MARTIN AND STOLL (GROUND 3)

Petitioner challenges claims 1–20 of the ’105 patent under 35 U.S.C. § 103(a) as unpatentable over the combination of Martin and Stoll. Pet. 46–56. For the reasons set forth below, we agree with Petitioner and find the preponderance of the evidence supports the challenges.

1. Claim 1

a. Petitioner’s Contentions

Petitioner argues Martin discloses a truck with a dump box having an open end, and that the “only missing aspect” is that Martin “does not disclose a double cylinder assembly within a single corner post.” Pet. 46–47. The substitution of a single cylinder (as used in Martin’s disclosed truck) with a double cylinder is, according to Petitioner, disclosed in Stoll. *Id.* at 51. Petitioner argues “Stoll, which describes a pneumatic double

⁹ In its Sur-Reply, Patent Owner raises a new argument that its invention met a “long-felt need.” Sur-Reply 14–15. However, this is a new argument raised for the first time in the Sur-Reply and we decline to consider it as waived.

cylinder assembly for moving machinery, specifically teaches substituting one cylinder with two smaller cylinders.” Pet. 26 (citing Ex. 1005, 2:59–75). Just as Stoll strives to reduce the height of two cylinders positioned horizontally, Petitioner’s expert explains it would have been obvious to the ordinary artisan to incorporate Stoll’s teaching into the known dump truck designs, in order to reduce the width of the space housing the vertically-installed cylinders. Pet. 27–28 (citing Ex. 1012 ¶¶ 47–49).

As for the motivation to combine Martin and Stoll, Petitioner explains, “if more [] lifting force is desired, this is typically achieved by increasing [] the area of the cylinder’s piston head.” Pet. 20. Petitioner submits that some dump trucks are used to carry larger items, such as boulders, tree stumps, construction debris, and even machinery, and those trucks “employ a high-lift tailgate in order to achieve a higher clearance so that these [larger] items can be ejected from the dump body.” *Id.* at 21 (citing Ex. 1012 ¶ 39). Petitioner notes that “[t]he taller and heavier these tailgates are—which have to be raised to a significant height—the more lifting force is required in order to counteract the weight of the tailgate being lifted.” *Id.* Petitioner contends that “[t]his can be accomplished by increasing the surface area of the pistons.” *Id.* Petitioner, however, notes that “[a]ny increase to the size of the cylinder assembly in order to increase lifting force cannot extend the corner posts that house the cylinder assembly inwardly, as this blocks the rear opening of the truck.” *Id.* at 22 (citing Ex. 1012 ¶ 40). As for the other alternative—extending outward from the sides of the dump body, Petitioner argues that “it is generally undesirable for such lifting mechanisms to extend too far outwardly from the sides of the truck, as this increases the overall width of the vehicle,” and it would have

been undesirable to reduce the internal width of the dump box, to accommodate larger cylinders, because this “has the very undesirable effect of reducing the carrying capacity of the dump truck.” *Id.* at 23–25 (citing Ex. 1012 ¶¶ 41, 42, 44).

In order to prevent either of these undesirable dimension changes, Petitioner asserts that “one of ordinary skill in the art would be motivated to reduce the width of the corner box that houses the cylinder assembly.” *Id.* at 25 (citing Ex. 1012 ¶ 45). Thus, Petitioner asserts that a person of ordinary skill would have been motivated to substitute two cylinders for Martin’s one, as taught by Stoll, where the increased lifting force can be accomplished with a more “compact, space-saving arrangement” than increasing the dimensions of the cylinder housing. Pet. 26 (citing Ex. 1005 at 2:59–65 and 2:73–75); *see also* Ex. 1012 ¶ 49. Petitioner submits that the combination would be predictable and a person of ordinary skill would have been able to make the combination with a reasonable expectation of success. Pet. 27 (citing Ex. 1012 ¶ 48).

b. Patent Owner’s Arguments

Patent Owner raises a number of arguments. We do not find that any dissuades us that Petitioner has proven its case.

First, Patent Owner argues that Petitioner has not shown a motivation to combine. PO Resp. 12–18; Sur-Reply 5–8. Second, Patent Owner asserts that Stoll does not teach a “double-cylinder assembly,” under its proposed claim construction. PO Resp. 18–23. Third, Patent Owner contends that Stoll is nonanalogous art. *Id.* at 23–26. Finally, Patent Owner submits that Petitioner’s combination makes use of impermissible hindsight. *Id.* at 26–31; Sur-Reply 8–14.

c. Analysis

Having reviewed Petitioner’s evidence and argument, we find that Petitioner has shown by a preponderance of the evidence that the combination of Martin and Stoll accounts for the limitations of claim 1 of the ’105 patent, and that a person of ordinary skill would have been motivated to combine the references in the manner suggested with a reasonable expectation of success. *See* Pet. 46–51, 20–28. We address Patent Owner’s arguments below.

i. Motivation to Combine

A motivation to combine may be found “explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (quoting *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013)). The inquiry into the existence of a motivation to combine is a flexible one—we assume a person of ordinary skill in the art is a person of ordinary creativity with common sense, common wisdom, and common knowledge. *See Fleming v. Cirrus Design Corp.*, No. 21-1561, — F.4th —, 2022 WL 710549, at *6 (Fed. Cir. Mar. 10, 2022).

Patent Owner argues that the “fatal flaw” in Petitioner’s motivation to combine is that it “makes impermissible use of [Applicant’s Admitted Prior Art (“AAPA”)] . . . and it cannot be found in either Martin or Stoll.” PO Resp. 14. Patent Owner asserts that “Petitioner simply restates and rephrases the problems disclosed by the ‘105 Patent.” *Id.* at 15 (citing Pet.

23; Ex. 1012 ¶¶ 41–42). Patent Owner contends that “[a]lthough Petitioner’s expert alleges these problems were ‘already clearly recognized in the art of dump trucks prior to the invention of the ‘105 patent,’ Petitioner’s expert cannot cite a single reference in the art of dump trucks in support of his statement other than the ‘105 Patent.” *Id.* (citing Ex. 1012 ¶¶ 42–43). Patent Owner argues that “Petitioner’s stated motivation to combine Marin and Stoll makes impermissible use of AAPA and is ‘knowledge gleaned only from the applicant’s disclosure.’” *Id.* Patent Owner submits that Martin is not concerned at all with Petitioner’s alleged motivation to combine it with Stoll, namely, to not increase the overall width of the vehicle. *Id.*; Sur-Reply 5–6. As for Stoll, Patent Owner argues that Petitioner ignores that decreasing the height of the assembly in Stoll results a proportionate increase in the width of the assembly. PO Resp. 17–18.

Contrary to Patent Owner’s arguments, we find that Petitioner has shown that a motivation to combine the references’ teachings existed. Petitioner’s asserted motivation to combine, which we summarized above, is supported by rational underpinnings in the evidentiary record. Petitioner explains in detail the design considerations of both dump bodies and mechanical cylinders and explains the design considerations a person of ordinary skill would consider in seeking to increase cylinder power while maintaining dump body volume without increasing the overall width of the vehicle. Pet. 20–25, 51 (citing Ex. 1012 ¶¶ 38–42, 44–45, 77–86). Petitioner also identifies Stoll’s teaching that using two smaller cylinders in place of one larger one offers a more compact solution while maintaining the same piston power. *Id.* at 26–27 (citing Ex. 1012 ¶¶ 46–49). Patent Owner’s expert acknowledged that the solutions to the problem of

maximizing dump body volume while maintaining vehicle width were limited. *See* Ex. 2001 ¶¶ 57–60 (identifying using a hydraulic cylinder in place of a pneumatic cylinder and longer pivot arm as alternative solutions); Ex. 1014, 23:14–24:20 (identifying three possible solutions (i) switching from one cylinder to two smaller ones, (ii) switching from a pneumatic cylinder to a hydraulic one, or (iii) using a longer pivot arm). Thus, we agree with Petitioner that this is the type of situation described in *KSR*:

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

KSR, 550 U.S. at 421 (cited at Pet. 28).

Moreover, as the Court also explained, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. This rationale also applies here. Stoll teaches that using two smaller cylinders in place of one larger one offers a more compact solution while maintaining the same piston power. Ex. 1005, 2:5–65, 73–75. The evidence shows that a person of ordinary skill would recognize that this technique could improve other cylinder actuated devices (such as dump truck lift gates) in similar ways with predictable results.¹⁰ Ex. 1012 ¶ 48.

¹⁰ Patent Owner’s specification confirms the routineness of this modification. *See In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994) (holding “the Board’s observation that appellant did not provide the type of detail in his specification that he now argues is necessary in prior art references supports the Board’s finding that one skilled in the art would have

As for Patent Owner’s arguments, we begin by noting that several of Patent Owner’s arguments are legally incorrect. Contrary to Patent Owner’s suggestion that Martin needs to suggest the modification, PO Resp. 15–16; Sur-Reply 5–6, there is no requirement that Martin or Stoll suggest the combination. *See Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1003 (Fed. Cir. 2016) (explaining “KSR overturned the approach previously used by this court requiring that some teaching, suggestion, or motivation be found in the prior art.”).

Also, contrary to Patent Owner’s contention, Petitioner can rely on the applicant admitted prior art contained in the ’105 patent in its motivation to combine analysis. *See* PO Resp. 14. As the Federal Circuit recently confirmed, “a patentee’s admissions about the scope and content of the prior art provide a factual foundation as to what a skilled artisan would have known at the time of invention,” including “furnishing a motivation to combine.” *Qualcomm Inc. v. Apple, Inc.*, 24 F.4th 1367, 1376 (Fed. Cir. 2022) (citing *Randall Mfg. v. Rea*, 733 F.3d 1355, 1363 (Fed. Cir. 2013)); *see also Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1339 (Fed.

known how to implement the features of the references.”); *Smith & Nephew, Inc. v. Rea*, 721 F.3d 1371, 1381–82 (Fed. Cir. 2013) (addressing a patent owner’s argument as to an alleged technical issue in the proposed combination, stating that “[t]his naturally raises the question of how [patent owner] managed to make such a combination work”). Indeed, the Specification describes the cylinders used and their operation as “conventional.” Ex. 1001, 3:52–55 (“The first and second cylinders 41 and 42 are, of themselves, conventional in the art and may be embodied as hydraulically or pneumatically actuated cylinders.”); 3:57–59 (“As is well known in the art, the piston rods 41a and 42a can be extended from or retracted within the associated first and second cylinders 41 and 42 as desired.”); 3:66–4:11.

Cir. 2020) (noting “it is appropriate to rely on admissions in a patent’s specification when assessing whether that patent’s claims would have been obvious.”).¹¹

Patent Owner suggests that “Petitioner alleges the motivation to combine Martin with Stoll is so as to not increase the overall width of the dump body, but Martin teaches a vertical orientation of the cylinders not a horizontal orientation” and “[w]ith a vertical orientation, the width of the dump body is not an issue.” PO Resp. 16 (citing Ex. 1001, 1:55–58). However, this argument relies on only part of Petitioner’s position on motivation. Petitioner asserts that the ordinarily skilled artisan’s goal would have been both minimizing width and maximizing dump body volume and piston power. Pet. 24–25. Thus, although the vertical orientation can address the width issue, it does not address the dump body volume or piston power issue. *See id.*

Finally, Patent Owner also argues that Petitioner fails to account for the fact that reducing the width (“height” in the case of horizontally-oriented Stoll) requires a corresponding increase in the orthogonal direction (“width” in Stoll). PO Resp. 17–18. However, as Petitioner explains this fact is

¹¹ On August 18, 2020, the Director of the Patent & Trademark Office issued a Memorandum addressing the use of “applicant admitted prior art” (“AAPA”) as the basis for an *inter partes* review challenge. *See* USPTO Memorandum, Treatment of Statements of the Applicant in the Challenged Patent in *Inter Partes* Reviews Under § 311 (August 18, 2020), available at https://www.uspto.gov/sites/default/files/documents/signed_aapa_guidance_memo.pdf. That Memorandum concludes that a permissible use of admitted prior art in an *inter partes* review is to “supporting a motivation to combine particular disclosures.” *Id.* at 9. Petitioner uses the AAPA to support its motivation to combine, which is a permitted use under the memorandum. *Id.*

irrelevant because “Stoll is used for the teaching of substituting two cylinders for one to reduce the profile in the direction perpendicular to the double-cylinder dimension.” Reply 6. Thus, we agree with Petitioner that this does not diminish the motivation to combine the references, nor does Patent Owner identify any problem that this increase in the orthogonal direction that would obviate the motivation to combine. Accordingly, we find that Petitioner has shown an adequate motivation to combine and a reasonable expectation for success.

ii. Patent Owner’s Alleged Deficiencies in Stoll

Patent Owner argues that Stoll is missing various limitations based on Patent Owner’s proposed construction of “double cylinder assembly”—i.e., that the cylinders in Stoll are not a matching, single unit, Stoll does not teach two work cylinders that transfer the forces produced by the two cylinders along one longitudinal axis of thrust, and Stoll fails to teach cylinders that are conventional in the art of dump boxes. PO Resp. 18–22. We rejected Patent Owner’s proposed construction of “double cylinder assembly” and the importation of these limitations into the claims, as discussed above. *See supra* II.B. Thus, Patent Owner’s arguments are not persuasive.

Moreover, we note that Patent Owner’s arguments suffer from other problems. For example, Patent Owner’s contention that Stoll’s cylinders are not conventional in the art of dump boxes rests on the bodily incorporation of Stoll’s mechanism into Martin. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.”). “[O]bviousness

does not require the prior art to reach expressly each limitation exactly. Rather, obviousness may render a claimed invention invalid where the record contains a suggestion or motivation to modify the prior art teaching to obtain the claimed invention.” *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 727 (Fed. Cir. 2002). Thus, contrary to Patent Owner’s implicit contentions, the prior art does not have to expressly provide a component that would have been known to perfectly fit in the combination. Here, as Patent Owner’s specification makes clear, a person of ordinary skill would have been able to select the appropriate cylinder apparatus from Stoll’s teachings. *See* Ex. 1001, 3:52–55 (“The first and second cylinders 41 and 42 are, of themselves, *conventional in the art* and may be embodied as hydraulically or pneumatically actuated cylinders.”) (emphasis added); 3:57–59 (“As is well known in the art, the piston rods 41a and 42a can be extended from or retracted within the associated first and second cylinders 41 and 42 as desired.”); 3:66–4:11. Thus, Patent Owner’s arguments, in effect, that you could not use the precise cylinders used in Stoll in the combination are not persuasive.

Patent Owner’s contention that Stoll does not teach two work cylinders that transfer the forces produced by the two cylinders along one longitudinal axis of thrust fails because it focuses on Stoll alone—not the combination. Stoll operates in a latitudinal direction, but the combination relies using a double cylinder assembly as taught by Stoll positioned in a corner post of the dump body taught by Martin, which would provide a longitudinal axis of force. “A person of ordinary skill is also a person of ordinary creativity, not an automaton,” so the fact that it would take some creativity to carry out the combination of Martin and Stoll does not defeat a

finding of obviousness. *KSR*, 550 U.S. at 421; *see also ClassCo*, 838 F.3d at 1219 (“The rationale of *KSR* does not support [the] theory that a person of ordinary skill can only perform combinations of a puzzle element A with a perfectly fitting puzzle element B.”).

Finally, we note that Patent Owner’s arguments that the cylinders in Stoll are not “matching” or a “single unit” ignore the teachings of Stoll. As Petitioner explains, Stoll teaches two cylinders are “are mounted symmetrically to one another with reference to the longitudinal axis of the brake-cylinder 1. . . The three cylinders being combined into a single unit and housed in a common casing 8” Reply 8 (quoting Ex. 1005, 2:45–48, 2:73–79). Thus, Stoll does disclose “matching” cylinders that are combined in a single unit.

iii. Whether Stoll is Nonanalogous Art

Patent Owner also argues that Stoll is nonanalogous art. PO Resp. 23–26. Patent Owner asserts that Stoll is not in the same field of endeavor as the claimed invention of the ’105 patent and Stoll is not reasonably pertinent to any problem faced by the inventor of the ’105 patent. *Id.* at 24–26. Patent Owner contends that

Neither the title of the patent, “A pneumatically operated machine tool advancing device” nor the body of the patent specification, have any keywords associated with dump bodies, tailgate lifting mechanisms, fluid power lifting equipment, double cylinder assembly, twin cylinder assembly, or multiple cylinder assembly. There are a couple of references to “. . . two pneumatic work cylinders . . .” but the context is not apparent without a full understanding of the design.

Id. at 25 (citing Ex. 2001 ¶ 70). Patent Owner also contends the brake cylinder of Stoll would have led a skilled artisan away from using it in the dump truck/dump body field. *Id.* (citing Ex. 2001 ¶ 64). Finally, Patent

Owner argues that Stoll only discusses its benefits in the field of machine tools, so a person of ordinary skill “could not ascribe those advantages to art outside of that field.” *Id.* at 26.

We agree with Petitioner that Stoll is analogous art. Reply 10–11. Prior art is analogous, even if not within the field of the inventor’s endeavor, as long as it is “reasonably pertinent to the particular problem with which the inventor is involved.” *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020). This determination “ultimately rests on the extent to which the reference of interest and the claimed invention relate to a similar problem or purpose.” *Id.* at 1359. The ’105 patent relates to “mechanisms for raising and lowering a tailgate,” Ex. 1001, 1:13–15, but is specifically concerned with maximizing the force from the cylinders without expanding the width occupied by the mechanism, *see* Ex. 1001, 4:15–18 (“Therefore, the two double cylinder assemblies 40 provide more force than the single pneumatic cylinder could provide for a given size of the corner posts 36.”). The ’105 patent explains that “the internal space that is available within each of these corner posts is limited, thus limiting the size of the cylinder that can be provided within each of the corner posts (and, as a result, the amount of force that is available to move the tailgate between the opened and closed positions).” Ex. 1001, 1:48–61. The patent also says the cylinders “may be embodied as hydraulically or pneumatically actuated cylinders.” *Id.* at 3:52–55.

Stoll teaches “a pneumatically operated machine tool advancing device including a brake cylinder containing hydraulic oil or other viscous brake fluid, and two pneumatic work cylinders located on opposite sides of the brake cylinder” and expressly states that its disclosed cylinder

arrangement is advantageous because of its “low constructive height, as two smaller work-cylinders can be used instead of one large one, if at the outset the same piston surface, i.e., the same piston-power is desired” which offers “a compact, space saving arrangement with smooth outer surfaces.”

Ex. 1005, 1:13–18, 2:59–75.

Thus, both the ’105 patent and Stoll are concerned with problems utilizing pneumatic and/or hydraulic cylinders to provide moving forces on devices while minimizing the space (at least in one dimension, e.g., width or height) required by the apparatus and, at the very least, would be reasonably pertinent to an inventor attempting to improve providing moving forces via mechanical cylinders. *See Donner Tech.*, 979 F.3d at 1360 (noting “[t]he relevant question is whether a [person of ordinary skill in the art] ‘would reasonably have consulted’ the reference in solving the relevant problem” and that the problem must be identified “from the vantage point of a PHOSITA who is considering turning to the teachings of references outside her field of endeavor” and “[s]uch a PHOSITA—resigned to considering art outside her field of endeavor—would thus not identify the problems so narrowly so as to rule out all such art”); *see also In re Paulsen*, 30 F.3d 1475, 1481–82 (Fed. Cir. 1994) (finding an inventor considering a hinge and latch mechanism for portable computers would naturally look to references employing other “ housings, hinges, latches, springs, etc.,” which in that case came from areas such as “a desktop telephone directory, a piano lid, a kitchen cabinet, a washing machine cabinet, a wooden furniture cabinet, or a two-part housing for storing audio cassettes”). We find that Petitioner sufficiently demonstrates that Stoll is analogous art.

iv. Alleged “Impermissible Hindsight”

Finally, Patent Owner argues that Petitioner “uses impermissible hindsight reconstruction to locate Stoll, a reference that Petitioner alleges teaches the ‘105 Patent’s claimed double cylinder assembly used in a space-saving or compact arrangement.” PO Resp. 26; Sur-Reply 8–14. Patent Owner asserts that “[t]o find Stoll, Petitioner provided the ‘105 Patent to ‘an agent who specializes in researching patents . . . and they found this patent [Stoll].” PO Resp. 26–27 (citing Ex. 2010, 47:24–48:1). Patent Owner complains that “Stoll is an obscure UK patent, first published in November 1970 and, since that time, has only been cited in the prosecution of two US patents, both in the art of automated machine tool advancing devices.” *Id.* at 27. Patent Owner argues that Petitioner used the ’105 patent “as a blueprint to find a prior art reference that disclosed two pneumatic cylinders and included the keyword ‘compact.’” *Id.* at 28. Patent Owner contends this is impermissible hindsight.

We disagree with Patent Owner that Petitioner used impermissible hindsight. To begin with, Patent Owner’s arguments about the alleged obscurity of Stoll are irrelevant. There is no dispute that Stoll, as a published British patent specification from 1970, is prior art. As long as Stoll is analogous art—i.e., it is in the same field of endeavor or reasonably pertinent to the problem facing the inventor—the hypothetical person of ordinary skill is presumed to know it. *See Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1449–54 (Fed. Cir. 1984) (explaining what a person of ordinary skill is presumed to have known).

In addition, Patent Owner’s arguments that Petitioner was impermissibly using admitted prior art in its reasoning for the motivation to

combine are simply not consistent with the law. Such a use is permissible. *See Koninklijke Philips N.V.*, 948 F.3d at 1337 (“Although the prior art that can be considered in inter partes reviews is limited to patents and printed publications, it does not follow that we ignore the skilled artisan’s knowledge when determining whether it would have been obvious to modify the prior art.”). As we explained above, Petitioner has provided a sufficient articulated reasoning with rational underpinning to show a motivation to combine the references. *See supra* pp. 41 –46. Thus, we find that Petitioner’s obviousness analysis is not motivated by impermissible hindsight, but rather based on the knowledge of a person of ordinary skill in the art and the teachings of the prior art itself. As courts have explained,

Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.

In re McLaughlin, 443 F.2d 1392, 1395 (CCPA 1971). Accordingly, we agree with Petitioner that the combination was not the result of “impermissible hindsight.”

v. Conclusion as to Claim 1

Having reviewed Petitioner’s evidence and Patent Owner’s arguments, we find that Petitioner has shown by a preponderance of the evidence that the combination of Martin and Stoll accounts for all of the limitations of claim 1, that the ordinarily skilled artisan would have had motivation to combine the references in the manner suggested, and would have had a reasonable expectation of success. *See Pet.* 46–51.

2. *Claims 2–20*

a. Claims 2–10

Claim 2–10 depend directly or indirectly from claim 1. Ex. 1001, 4:64–5:29. Petitioner explains how the additional limitations of these dependent claims are taught by the combination of Martin and Stoll. *See* Pet. 51–55. Patent Owner does not specifically argue that the combination of Martin and Stoll fails to account for the additional limitations recited by claims 2–10, or that a person of ordinary skill would not have combined the reference with reasonable expectation of success in any way beyond the arguments Patent Owner makes for claim 1, addressed above. Accordingly, Patent Owner has waived any additional argument directed to those limitations and dependent claims 2–10. *See* Paper 8, 8 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”).

We have reviewed Petitioner’s evidence and assertions as to the obviousness of the dependent claims set forth in the Petition. *See* Pet. 51–55 (citing, *inter alia*, Ex. 1012 ¶¶ 87–94). We agree with Petitioner’s positions on these claims and adopt the same as our own. For the reasons provided in the Petition, as supported by the evidence of record, Petitioner demonstrates by a preponderance of the evidence that the combination of Martin and Stoll teaches the limitations of claims 2–10 and that a person of ordinary skill would have been motivated to combine the references to achieve the claimed subject matter with a reasonable expectation of success.

b. Claim 11

Claim 11 is an independent claim and recites similar limitations to claim 1, except it claims the entire vehicle—also recites “a frame” and “the

dump box being supported on the frame for movement between a lowered position for storing and transporting items and a raised position for dumping the items out of the dump box” Ex. 1001, Col. 5, Claim 11. Petitioner explains that “[t]his basic dump truck structure was of course within the general knowledge of the ordinarily-skilled artisan prior to the invention of the ‘105 patent.” Pet. 39 (citing Ex. 1012 ¶ 66).

Patent Owner does not specifically argue that the combination of Martin and Stoll fails to account for the additional limitations recited by claim 11 beyond Patent Owner’s arguments, addressed above, for claim 1. *See generally* PO Resp. Accordingly, Patent Owner has waived any argument directed to those limitations. *See* Paper 8, 8 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”).

We have reviewed Petitioner’s evidence and argument directed to the obviousness of claim 11, as set forth in the Petition. *See* Pet. 55–56 (citing, *inter alia*, Ex. 1012 ¶ 95). We agree with Petitioner’s positions on the obviousness of claim 11 and adopt the same as our own. For the reasons provided in the Petition, Petitioner demonstrates by a preponderance of the evidence that the combination of Martin and Stoll teaches the limitations of claim 11 and that a person of ordinary skill would have been motivated to combine the references to achieve the claimed subject matter with a reasonable expectation of success.

c. Claims 12–20

Claims 12–20 depend directly or indirectly from claim 11. Ex. 1001, 6:11–43. The additional limitations of claims 12–20 correspond to those of claims 9–10. Pet. 39 (citing Ex. 1012 ¶ 66); Pet. 51–56.

Patent Owner does not specifically argue that the combination of Martin and Stoll fails to account for the additional limitations recited by claims 12–20, beyond Patent Owner’s arguments, addressed above, for claim 1. Accordingly, Patent Owner has waived any argument directed to those limitations. *See* Paper 8, 8 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”).

We have reviewed Petitioner’s evidence and argument as set forth in the Petition. *See* Pet. 51–56 (citing, *inter alia*, Ex. 1012 ¶¶ 87–95). We agree with Petitioner’s positions on the obviousness of these dependent claims and adopt the same as our own. For the reasons provided in the Petition, Petitioner demonstrates by a preponderance of the evidence that the combination of Martin and Stoll teaches the limitations of claims 12–20 and that a person of ordinary skill would have been motivated to combine the references to achieve the claimed subject matter with a reasonable expectation of success.

3. Summary as to Obviousness

Weighing the evidence of record in view of the parties’ arguments, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–20 of the ’105 patent are unpatentable because they would have been obvious over the combination of Martin and Stoll. *See KSR*, 550 U.S. at 417 (“If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”). Here, as we detailed above, the prior art combination teaches all the limitations of the claims, and Petitioner has shown that the ordinarily skilled artisan would have been motivated to combine the references and would have had a reasonable expectation of success. Weighing the *Graham* factors together, we find the evidence

regarding the prior art combination's rendering the claims obvious is strong and the objective evidence presented is very weak. *See Graham*, 383 U.S. at 36 (holding that alleged secondary considerations of commercial success and long-felt need did not "tip the scales of patentability" where the invention "rest[ed] upon exceedingly small and quite non-technical mechanical differences in a device which was old in the art").

I. REMAINING GROUNDS

Having determined that Petitioner establishes by a preponderance of the evidence that the subject matter of claims 1–20 (all claims) would have been obvious over the combination of Martin and Stoll, we do not address Petitioner's additional grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner "is entitled to a final written decision addressing all of the claims it has challenged"); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App'x 984, 990 (Fed. Cir. 2020) (nonprecedential) ("We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.").

III. PATENT OWNER'S MOTION TO EXCLUDE

A. BACKGROUND

On January 4, 2022, Patent Owner moved to exclude the declaration of Petitioner's declarant Mr. Paul Raymond under 37 C.F.R. § 42.64(c). Mot. Exclude. In the Motion to Exclude, Patent Owner asserts (1) that Mr. Raymond fails to meet the standards for expert witness testimony under Federal Rule of Evidence ("FRE") 702, and (2) that Mr. Raymond does not have the requisite knowledge and experience in the subject matter of the challenged claims. *Id.* at 2.

On January 11, 2022, Petitioner filed an opposition to the motion, contesting Patent Owner's arguments in the Motion to Exclude, and additionally arguing that the Motion to Exclude is untimely under 37 C.F.R. § 42.64. Opp. On January 19, 2022, Patent Owner filed its Reply in support of the Motion to Exclude. PO Mot. Reply.

B. PATENT OWNER'S MOTION UNDER § 42.64(C) IS *DENIED* AS BASED ON
UNTIMELY OBJECTIONS TO TESTIMONY

Patent Owner styled its Motion as a "Motion to Exclude Testimony." Mot. Exclude, Title. Thus, the Motion to Exclude is subject to the procedural requirements of such a motion, which include the timeliness requirements of § 42.64.

A motion to exclude evidence must be filed to preserve a prior objection to evidence. 37 C.F.R. § 42.64(c). An objection to deposition evidence "must be made during the deposition." 37 C.F.R. § 42.64(a). An objection to evidence submitted prior to the institution of the trial, including evidence submitted with a petition to institute *inter partes* review, must be filed within ten business days of the institution of the trial. 37 C.F.R. § 42.64(b). Once a trial is instituted, any objection must be filed within five business days of the service of evidence to which the objection is directed. *Id.*

Patent Owner seeks to exclude Mr. Raymond's declaration (Ex. 1012). Mot. Exclude 2. To the extent that Patent Owner's motion is based upon prior objections to such evidence, Petitioner argues that each is untimely. Opp. 1. Petitioner argues that the declaration of Exhibit 1012 was filed with the petition, but no objection was made before the Motion to Exclude was filed on January 4, 2022, far outside the 10-business day period

after the April 19, 2021 institution of trial that is permitted by § 42.64(b). Opp. 2–3. In its Reply, Patent Owner argues that its motion is “in the nature of a *Daubert* or F.R.E. 702 motion, rather than a motion to exclude particular pages of documents or only specific paragraphs” PO Mot. Reply 2. Instead, Patent Owner requests that, “in the exercise of its gatekeeper duty, the Board disregard, exclude or otherwise give no weight to Raymond’s testimony.” *Id.* Patent Owner contends that it repeatedly raised the argument that Mr. Raymond was not qualified and we should give no weight to his testimony. *Id.* at 2–3. Patent Owner also argues that we should waive the requirement in the “interests of justice.” *Id.* at 4 (citing 37 C.F.R. § 42.5(c)(3)).

Patent Owner also asks us to consider its arguments regarding the weight we should give Mr. Raymond’s testimony as objections under FRE 702. PO Mot. Reply 2–3. However, objections are to the admissibility of evidence, not its weight. *See* 37 C.F.R. § 42.64. Our rules require that “[t]he objection must identify the grounds for the objection with sufficient particularity to allow correction in the form of supplemental evidence.” *Id.* § 42.64(b)(1). Thus, the rules provide a sequence of events, where the objections provide notice of the specific evidentiary arguments that the party is raising and trigger the ability of the other party to respond. Here, the arguments that Mr. Raymond’s testimony should be accorded little weight do not provide adequate notice that Patent Owner seeks to exclude that evidence under FRE 702. Consequently, because Patent Owner failed to file timely objections, Patent Owner’s motion to exclude evidence under § 42.64 is *denied*.

In the alternative, Patent Owner requests we waive Rule 42.64(c) and permit the filing of Patent Owner's evidentiary objections after its Motion to Exclude. PO Mot. Reply 4. Patent Owner's request for relief comes in its Reply in support of its Motion to Exclude. *Id.* But, every request for relief "must be requested in the form of a motion." 37 C.F.R. § 42.20(a). Because the request to waive the timeliness rule comes in a reply rather than a motion, it violates Rule 42.20(a), so we *deny* the request.

C. MR. RAYMOND'S TESTIMONY IS NOT EXCLUDED UNDER FRE 702

In addition to being untimely, we find that, even if Patent Owner's FRE 702 objections were timely and proper, we would deny the Motion to Exclude.

1. Legal Principles

Federal Rule of Evidence 702 provides that:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue[.]

Fed. R. Evid. 702 (a).

Under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 (1993), and Rule 702, courts and the Board are charged with a "gatekeeping role," the objective of which is to ensure that expert testimony admitted into evidence is both reliable and relevant. *See Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (holding that Rule 702 applies not only to "scientific" testimony, but to all expert testimony). This rule applies to patent cases as well. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1360 (Fed. Cir. 2008).

“To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—a witness must at least have ordinary skill in the art.” *Kyocera Senco Indus. Tools, Inc. v. ITC*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022). “Without that skill, the witness’ opinions are neither relevant nor reliable. The opinions would not be based on any specialized knowledge, training, or experience that would be helpful to the factfinder.” *Id.* at 1377. In fact, “[a]dmitting testimony from a person . . . with no skill in the pertinent art serves only to cause mischief and confuse the factfinder.” *Sundance*, 550 F.3d at 1362. That testimony would “amount[] to nothing more than advocacy from the witness stand.” *Id.* at 1364–65.

Our determination here also considers that “[t]he policy considerations for excluding expert testimony, such as those implemented by the gatekeeping framework established by the Supreme Court in *Daubert* . . . are less compelling in bench proceedings such as *inter partes* reviews than in jury trials.” *Nestlé Healthcare Nutrition, Inc. v. Steuben Foods, Inc.*, IPR2015-00249, Paper 76 at 23 (PTAB June 2, 2016); *see also Seaboard Lumber Co. v. U.S.*, 308 F.3d 1283, 1302 (Fed. Cir. 2002) (stating that the concerns underlying *Daubert* are “of lesser import in a bench trial, where no screening of the fact-finder can take place”). Additionally, “we take into account the qualifications of an expert witness—and any shortcomings revealed through cross-examination—when evaluating the weight to be given that witness’s testimony. . . . the wholesale exclusion of a witness’s declarations is rarely called for in a proceeding before the Board.” *Ascend Performance Materials Operations LLC v. Samsung SDI Co., Ltd.*, IPR2020-00349, Paper 53 at 11 (PTAB July 15, 2021). Under such a

framework, we consider Patent Owner's arguments as they pertain to the *inter partes* review before us.

2. *Mr. Raymond's Specialized Knowledge Under FRE 702(a)*

Patent Owner argues that we should exclude Mr. Raymond's testimony because he is not at least a person of ordinary skill in the art. Mot. Exclude 3–8. In particular, Patent Owner argues that Mr. Raymond has “no design experience in the field of dump boxes or lifting mechanisms, nor ha[s] performed any engineering analyses related to their components.” *Id.* at 6. Patent Owner's arguments are based on its overly constrained definition of a person of ordinary skill in the art. As we explained above, in view of the entire record, we find that Patent Owner's definition is not correct and adopted a slightly modified version of Petitioner's definition. We find that Mr. Raymond's experience meets this definition. As we explained above, Mr. Raymond has extensive experience in the dump truck industry. *See supra* II.F. In particular, he has extensive experience in repairing dump trucks and dump bodies, installing dump body components, and selling dump trucks and dump components. *See* Ex. 1013, 1–2. We find this experience to be directly relevant to the art involved in the '105 patent and sufficient to allow him to provide testimony that will be helpful to a trier of fact. Accordingly, we are not persuaded that Mr. Raymond lacks specialized knowledge that will help the trier of fact understand the evidence or determine a fact in issue as required by Federal Rule of Evidence 702(a) and *deny* Patent Owner's Motion to Exclude Testimony.

IV. CONCLUSION¹²

In summary,

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–20	103(a)	Stoll, “General Knowledge of One of Ordinary Skill” ¹³		
1–20	103(a)	Stoll, Weber, “General Knowledge of One of Ordinary Skill” ¹⁴		
1–20	103(a)	Martin, Stoll	1–20	
1–20	103(a)	Martin, Stoll, Weber ¹⁵		
1–20	103(a)	Biddy, Stoll ¹⁶		

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

¹³ This ground was not reached. See *supra* § II.I.

¹⁴ This ground was not reached. See *supra* § II.I.

¹⁵ This ground was not reached. See *supra* § II.I.

¹⁶ This ground was not reached. See *supra* § II.I.

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–20	103(a)	Biddy, Stoll, Weber ¹⁷		
		Overall Outcome	1–20	

Patent Owner’s motion to exclude is *denied*.

V. ORDER

For the reasons given, it is:

ORDERED that Petitioner *has shown* based on a preponderance of evidence that claims 1–20 of U.S. Patent No. 7,976,105 B2 are unpatentable;

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

FURTHER ORDERED because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

¹⁷ This ground was not reached. *See supra* § II.I.

IPR2020-01702
Patent 7,976,105 B2

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