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PUBLIC VERSION

Paper 82
Date: April 15, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

YITA LLC,
Petitioner,

v.

MACNEIL IP LLC
Patent Owner.

IPR2020-01139
Patent 8,382,186 B2

Before JAMES A. WORTH, MICHAEL L. WOODS, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

PESLAK, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining No Challenged Claims Unpatentable

35 U.S.C. § 318(a)

Denying Patent Owner's Motion to Strike

37 C.F.R. § 42.64

IPR2020-01139
Patent 8,382,186 B2

I. INTRODUCTION

Yita LLC (“Petitioner”) filed a petition (Paper 3, “Pet.”) to institute an *inter partes* review of claims 1–7 (the “challenged claims”) of U.S. Patent No. 8,382,186 B2 (Ex. 1001, “the ’186 patent”). 35 U.S.C. § 311 (2018). Petitioner supports the Petition with the Declaration of Paul E. Koch, Ph.D. Ex. 1003 (“Koch Declaration”). MacNeil IP LLC (“Patent Owner”) timely filed a Preliminary Response. Paper 11 (“Prelim. Resp.”). Taking into account the arguments presented in Patent Owner’s Preliminary Response, we determined there was a reasonable likelihood that Petitioner would prevail in its contention that at least one of the challenged claims of the ’186 Patent is unpatentable under 35 U.S.C. § 103(a). On January 13, 2021, we instituted this *inter partes* review as to the challenged claims and all grounds presented in the Petition. Paper 17 (“Dec.”).

During the course of trial, Patent Owner filed a Patent Owner Response. Paper 28.¹ (“PO Resp.”). Patent Owner also filed Declarations of Tim A. Osswald Ph.D (Ex. 2041) (“Osswald Declaration”)², Ryan Granger (Ex. 2126) (“Granger Declaration”)³, a Supplemental Declaration of Ryan Granger (Ex. 2127) (“Supplemental Granger Declaration”), and Ray

¹ Patent Owner filed a redacted version of the Patent Owner Response. Paper 29.

² Patent Owner filed a Second Supplemental Declaration of Dr. Osswald to add citations to evidence submitted subsequent to the Patent Owner Response. Ex. 2186.

³ Exhibit 2126 was filed as supplemental information to correct the signature page in Mr. Granger’s original declaration (Ex. 2042). Paper 53, 6, 13.

IPR2020-01139
Patent 8,382,186 B2

Sherman (Ex. 2043) (“Sherman Declaration”)⁴ in support of its Patent Owner Response. Petitioner filed a Reply to Patent Owner’s Response. Paper 60 (“Pet. Reply”). In support of its Reply, Petitioner filed a Reply Declaration of Paul E. Koch Ph.D. (Ex. 1041) (“Reply Koch Declaration”), a Declaration of Mark Strachan (Ex. 1042) (“Strachan Declaration”), and a Declaration of Dan Perreault (Ex. 1044) (“Perreault Declaration”). Patent Owner filed a Sur-reply. Paper 70 (“Sur-reply”). An oral hearing was held on October 12, 2021, and a transcript of the hearing has been entered into the record. Paper 78 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims of the ’186 patent. For the reasons discussed below, we determine Petitioner has not established by a preponderance of the evidence that any challenged claim is unpatentable.

A. Related Matters

The parties identify the following matters as related:

- *MacNeil Auto. Prods. Ltd. et al. v. Yita LLC et al.*, No. 2:20-cv-00278 (WDWA);
- *MacNeil Auto. Prods. Ltd. et al. v. Jinrong (SH) Auto. Accessory Dev. Co., Ltd. et al.*, No. 2:20-cv-00856 (WDWA);
- IPR2020-01138, for which institution was denied;
- IPR2020-01140, for which institution was denied; and
- IPR2020-01142, which is currently pending and seeks review of U.S. Patent No. 8,883,834 B2.

⁴ Patent Owner filed a Second Supplemental Declaration of Mr. Sherman to add citations to evidence submitted subsequent to the Patent Owner Response. Ex. 2187.

IPR2020-01139
Patent 8,382,186 B2

Pet. 81–82; Paper 6, 2.

B. Real Parties in Interest

Petitioner identifies itself, Jinrong (SH) Automotive Development Co., Ltd, ShenTian (SH) Industrial Development Co., Ltd., and Hong Kong Yita International Trade Company Limited as the real parties-in-interest.

Pet. 81. Patent Owner identifies itself, MacNeil Automotive Products Limited and WeatherTech Direct, LLC as the real parties-in-interest.

Paper 6, 2.

C. The '186 Patent (Ex. 1001)

The '186 patent is directed to a “Vehicle Floor Tray.” Ex. 1001, code (54). The Specification describes a vehicle floor tray that is thermoformed from a polymer sheet of uniform thickness. *Id.* at code (57). The Specification explains a need for a removable floor tray that fits precisely within a vehicle’s foot well so that it’s more likely to remain in position during vehicle operation, thereby minimizing the chance it occludes the gas, brake or clutch pedal. *See id.* at 1:29–35; 2:4–8.

Figure 1, reproduced below, illustrates vehicle floor tray (or cover) 100 that is designed to protect a vehicle’s floor and lower sides of a foot well. Ex. 1001, 6:24–25.

IPR2020-01139
 Patent 8,382,186 B2

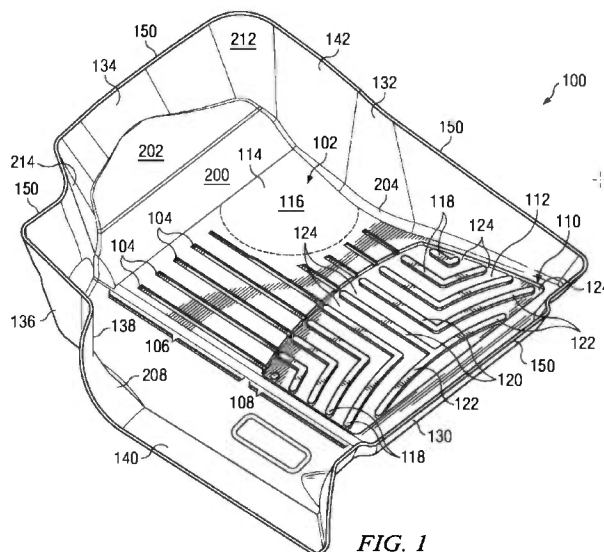


Figure 1 is an isometric view illustrating floor tray 100 which includes floor (or central panel) 102 with channels 104 disposed in forward regions 106 of the panel, a back region 108, and a series of side panels 130, 132, 134, 136, and 140 projecting upward from floor panel 102. *Id.* at 6:27–31, 6:41, 7:56–58. The side panels “are all so formed so as to [] closely conform to the vehicle side surfaces against which they are positioned.” *Id.* at 7:50–60.

D. Prior Art and Asserted Grounds

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–7	103 ⁵	Rabbe, ⁶ Yung, ⁷ Gruenwald ⁸

⁵ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103. Because the ’186 patent claims priority to applications filed before the effective date of the relevant amendment, the pre-AIA version of § 103 applies.

⁶ Fr. Pat. Publ. 2,547,252 (Pub. Dec. 14, 1982) (Ex. 1005) (“Rabbe”).

⁷ U.S. Pat. Publ. No. 2002/0045029 A1 (Pub. April 18, 2002) (Ex. 1006) (“Yung”).

⁸ G. Gruenwald, *Thermoforming: A Plastics Processing Guide*, Technomic Publishing Co., Inc. (2d. Ed.1998). (Ex. 1007) (“Gruenwald”).

IPR2020-01139
Patent 8,382,186 B2

E. Challenged Claims

Claim 1, which is the only independent claim among the challenged claims, recites:

1. A vehicle floor tray thermoformed from a sheet of thermoplastic polymeric material of substantially uniform thickness, comprising:
 - [a] a central panel substantially conforming to a floor of a vehicle foot well,
 - [b] the central panel of the floor tray having at least one longitudinally disposed lateral side and at least one transversely disposed lateral side;
 - [c] a first panel integrally formed with the central panel of the floor tray, upwardly extending from the transversely disposed lateral side of the central panel of the floor tray, and closely conforming to a first foot well wall,
 - [d] the first panel of the floor tray joined to the central panel of the floor tray by a curved transition;
 - [e] a second panel integrally formed with the central panel of the floor tray and the first panel, upwardly extending from the longitudinally disposed lateral side of the central panel of the floor tray, and closely conforming to a second foot well wall,
 - [f] the second panel of the floor tray joined to the central panel of the floor tray and to the first panel of the floor tray by curved transitions;
 - [g] a reservoir disposed in the central panel of the floor tray;
 - [h] a plurality of upstanding, hollow, elongate baffles disposed in the reservoir,
 - [i] each of the baffles having at least two ends remote from each other,
 - [j] the central panel, the first panel, the second panel, the reservoir and the baffles each having a thickness from a

IPR2020-01139
Patent 8,382,186 B2

point on the upper surface to a closest point on the bottom surface thereof, said thicknesses, as a result of the tray being thermoformed from the sheet of thermoplastic polymeric material of substantially uniform thickness, being substantially uniform throughout the tray;

[k] the baffles each having a width, in any horizontal direction, of more than two times its thickness,

[l] the baffles adapted to elevate the shoe or foot of the occupant above fluid collected in the reservoir, and further adapted to impede lateral movement, induced by a change in vehicle speed or direction, of fluid collected in the reservoir,

[m] any portion of the reservoir connected to a remote portion of the reservoir by a path formed around ends of the baffles.

Ex. 1001, 19:35–20:24 (certain line breaks and Petitioner’s labels added).

II. ANALYSIS

A. Overview

Petitioner bears the burden of establishing the unpatentability of any claim by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2019). This burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences

IPR2020-01139
Patent 8,382,186 B2

between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham* 383 U.S. at 17.

Factors pertinent to a determination of the level of ordinary skill in the art include: (1) 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 workers active in the field. *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. Ltd, Inc. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

In determining a level of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Petitioner contends a person of ordinary skill in the art “would have had a bachelor’s degree in engineering: plastics, mechanical, or a closely related field, or equivalent formal training, educations, or practical experience in a field relating to plastic product design, material science, or

IPR2020-01139
Patent 8,382,186 B2

manufacturing.” Pet. 24 (citing Ex. 1003 ¶¶ 26–28). Petitioner further contends that a skilled artisan would “have a minimum of three to five years of experience in plastics engineering, manufacturing, plastic product design, or a related industry.” *Id.*

Patent Owner submits a skilled artisan would have general educational and work experience that aligns with Petitioner’s proposed level of skill in the art. PO Resp. 7 (citing Ex. 2041 ¶¶ 39–42). Patent Owner specifies that the skilled artisan would “have at least three years of experience in plastics engineering, design, and manufacturing” and “would be particularly familiar with . . . thermoforming techniques.” *Id.* (citing Ex. 2041 ¶ 41).

Petitioner does not dispute Patent Owner’s proposed skill level. *See generally* Pet. Reply.

In our Decision on Institution, we agreed with Patent Owner “that industry knowledge and experience in the thermoforming industry is important to understanding the claimed thermoformed tray” and that “thermoforming is relevant to the level of ordinary skill.” Dec. 9. In the Preliminary Response, Patent Owner criticized Dr. Koch because he lacked specific experience in thermoforming. *See id.* (citing Prelim. Resp. 15). Although we adopted Patent Owner’s proposed level of skill, we noted that “advanced education and experience in related methods of forming plastics may suffice in the absence of having specific commercial experience with thermoforming.” *Id.*; *see also* Consolidated Trial Practice Guide, 34 (“A person may not need to be a person of ordinary skill in the art in order to testify as an expert under Rule 702, but rather must be ‘qualified in the pertinent art.’” (citing *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008))).

IPR2020-01139
Patent 8,382,186 B2

Patent Owner does not raise arguments about Dr. Koch's lack of experience in thermoforming in the Patent Owner Response. Further, neither party argues that the adoption of one or the other proposed level of skill would affect the resolution of the parties' disputes. *See generally* PO Resp.; Pet. Reply.

For all of these reasons, we maintain, from the Decision on Institution, our preliminary determination of the level of skill in the art.

C. Claim Construction

We apply the same claim construction standard used by Article III federal courts and the ITC, both of which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. 37 C.F.R. § 42.100(b). Accordingly, we construe each challenged claim of the '186 patent to generally be “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.” *Id.*

Petitioner and Patent Owner dispute the construction of “thickness . . . being substantially uniform throughout the tray.” Pet. 25–26; PO Resp. 11–12. We do not reach this issue because it is not necessary to resolve the ultimate dispute between the parties. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Patent Owner contends the preamble of claim 1 “is limiting at least because it provides antecedent basis for elements in the body of the claims (e.g., elements 1[b] (‘the floor tray’).” PO Resp. 8–9. Patent Owner contends that “the preamble reflects what the inventors actually invented, which is a ‘vehicle floor tray thermoformed from a sheet of thermoplastic polymeric material of substantially uniform thickness.’” *Id.* at 9. Petitioner

IPR2020-01139
Patent 8,382,186 B2

does not dispute that the preamble is limiting. *See* Tr. 9. In the absence of a dispute between the parties, we treat the preamble as limiting.

Patent Owner also requests we construe “closely conforming to a first foot well wall” and “closely conforming to a second foot well wall” as “‘an outer surface of the first panel conforming closely to a surface of a first vehicle foot well wall’ and ‘an outer surface of the second panel conforming closely to a surface of a second vehicle foot well wall.’” PO Resp. 9–11. Petitioner does not dispute this construction or offer its own construction of these terms but contends “even under MacNeil’s constructions, the claims would have been obvious.” Pet. Reply 2 n.1 (citing Ex. 1041 ¶¶ 13–16); *see also* Pet. 24–26 (arguing for ordinary and customary meanings for all claim terms except for “thickness . . . being substantially uniform throughout the tray.”).

In the Sur-reply, Patent Owner contends, for the first time, that the ’186 patent “defines ‘close conformance’ as a difference of about 1/8 inch or less with respect to 90 percent of the surface of the upper 1/3 of the area of the tray panels.” Sur-reply 14 (citing Ex. 1001, 7:61–8:1; Ex. 1049, 97:1–21; Ex. 1049, 116:22–117:14). Patent Owner explains that it offered this new construction because of testimony from the deposition of its experts and Petitioner’s rebuttal expert depositions. Tr. 38:1–6. Petitioner argues this proposed construction is not timely. *Id.* at 67:9–13, 70:1. Regardless of the timeliness, we do not adopt the construction advocated by Patent Owner in the Sur-reply.

Our analysis must start with the claim language. *Phillips*, 415 F.3d at 1312–14. Claim 1 broadly recites “close conformance” and does not require or suggest any numerical indicators of close conformance. We do not agree with Patent Owner that the Specification of the ’186 patent

IPR2020-01139
Patent 8,382,186 B2

includes a definition of “close conformance.” Rather, the portion of the Specification cited by Patent Owner describes the “preferred embodiment [of the invention].” Ex. 1001, 7:61. Patent Owner, thus, requests we narrow the term “closely conforming” by importing numerical limitations from the Specification into claim 1.⁹ The Federal Circuit repeatedly cautions against importing limitations from the Specification into the claims. *See Phillips*, 415 F.3d at 1323 (“although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”); *see also i4i Ltd. P’ship. v. Microsoft Corp.*, 598 F.3d 831, 843 (Fed. Cir. 2010) (“[g]enerally, a claim is not limited to the embodiments described in the specification unless the patentee has demonstrated a ‘clear intention’ to limit the claim’s scope with ‘words or expressions of manifest exclusion or restriction.’”). Patent Owner does not direct us to any part of the Specification that could be construed as a manifest exclusion or restriction to the term “closely conforming.” Consequently, even if Patent Owner timely requested we adopt this construction, we would not do so.

For the following reasons, we also do not adopt Patent Owner’s original construction of “an outer surface of the first panel conforming closely to a surface of a first vehicle foot well wall.” as “an outer surface of the first panel conforming closely to a surface of a first vehicle foot well wall.” PO Resp. 9. The primary issue is how a skilled artisan would understand “closely conforming” as recited in claim 1. Patent Owner’s

⁹ The numerical limitations proposed by Patent Owner are recited in independent claims 1, 5, and 9 of U.S. Patent No. 8,883,834 B2, which is the subject of co-pending IPR2020-01142.

IPR2020-01139
Patent 8,382,186 B2

rearrangement of words from “closely conforming” to “conforming closely” provides little, if any, guidance regarding how a skilled artisan would understand this term. Therefore, we turn to the Specification of the ’186 patent for guidance on the plain and ordinary meaning of this term.

Prior to describing the preferred embodiment as requiring a 1/8 inch conformance over 90 percent of the surface area, the Specification generally states that “tray 100 is closely fitted to the vehicle foot well wall in which it is designed to be placed” and the panels are all “formed so as to closely conform to the vehicle surfaces against which they are positioned.” Ex. 1001, 7:56–61. Based on this disclosure, we apply the plain and ordinary meaning of closely conforming that the first panel and second panel are in a close spatial relationship to the first foot well wall and second foot well wall respectively.

D. Alleged Obviousness over Rabbe, Yung, and Gruenwald

Petitioner contends claims 1–7 would have been obvious over the combined teachings of Rabbe, Yung, and Gruenwald. Pet. 27–81. Petitioner identifies the disclosures in Rabbe, Yung, and Gruenwald alleged to describe the subject matter in the challenged claims and provides reasons why a skilled artisan would have combined the teachings. *Id.* In addition, Petitioner offers the Koch Declaration in support of the Petition.

Patent Owner, in turn, contends Petitioner’s proposed combination does not teach every claim element (PO Resp. 12–47), a skilled artisan would not have combined the teachings of Rabbe, Yung, and Gruenwald with a reasonable expectation of success (*id.* at 48–69), and objective indicia weigh in favor of non-obviousness (*id.* at 69–80). Patent Owner supports its contentions with the Osswald Declaration, the Granger Declaration, and the Sherman Declaration.

IPR2020-01139
Patent 8,382,186 B2

We begin our analysis with brief overviews of Rabbe, Yung, and Gruenwald. We then address the parties' contentions with respect to the challenged claims.

1. Rabbe

Rabbe is an English-language translation of French Patent Document FR 2547252. Ex. 1005, 1. Rabbe is titled "Protective Tray for Vehicle Interiors" and discloses "floor mats with raised edges, forming a tray and providing effective protection of the floors and side walls of vehicle interiors at the feet of the driver, of the passengers, as well as the trunks, against water, mud, snow and other soil." *Id.* at codes (54), (57). We reproduce Figure 3 of Rabbe, below:

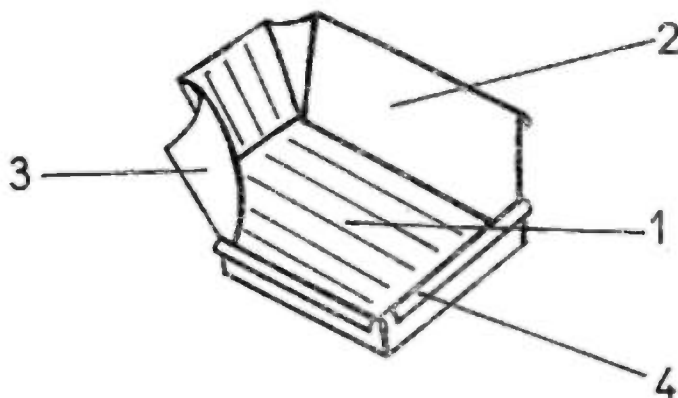


Figure 3 depicts Rabbe's protective tray with corrugated bottom, raised edges 2 "of unequal heights conforming to the interior contour of the vehicle, particularly the location of" wheels 3, and with flanges 4. *See id.* at 2:7-15.

2. Yung

Yung is a U.S. Patent Application titled "Mat Used in Cars." Ex. 1006, code (54). Yung describes a floor mat with a middle plastic plate or layer that is "flexible, light weight, and waterproof Polyethylene (PE) or

IPR2020-01139

Patent 8,382,186 B2

Polyethylene—Vinyl Acetate (EVA) foam.” *Id.* ¶ 11. We reproduce Figure 3 of Yung, below:

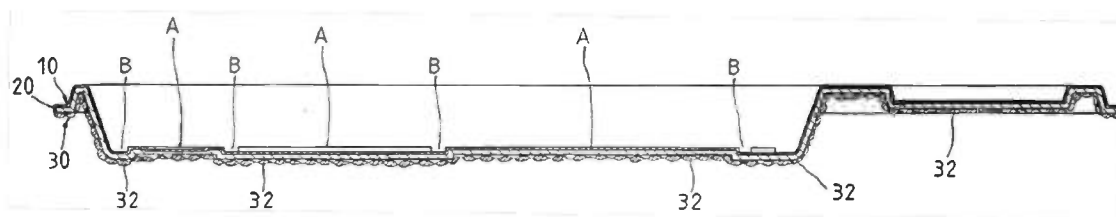


Figure 3 depicts a cross-sectional view of Yung’s car mat. *See id.* ¶¶ 6, 8.

3. Gruenwald

Gruenwald is a book titled “Thermoforming: A Plastics Processing Guide.” Ex. 1007, 1. Gruenwald discloses, in relevant part, reducing wall thickness in male and female molds (*id.* at 37–43), drape forming (*id.* at 162–163), billow drape forming (*id.* at 165), snap-back forming (*id.* at 166), reverse draw with plug-assist forming (*id.* at 167), and other design considerations (*id.* at 183–186).

4. Claim 1

a) Preamble

The preamble of claim 1 provides “A vehicle floor tray thermoformed from a sheet of thermoplastic polymeric material of substantially uniform thickness.” Ex. 1001, 19:35–37. Petitioner contends “the combination of Rabbe, Yung, and Gruenwald teaches the preamble.” Pet. 37.

Petitioner contends Rabbe discloses a vehicle floor tray “produced from *semi-rigid rubber or materials having the same properties*” but “is silent on the exact materials and processes for making its floor tray.” Pet. 35–36 (citing Ex. 1005, Abstract). Petitioner contends a skilled artisan “would have looked to common materials and processes known in the art and within the basic knowledge of a” skilled artisan, which “would have . . . included thermoplastic materials and thermoforming processes.” *Id.* at 36

IPR2020-01139
Patent 8,382,186 B2

(citing Ex. 1003 ¶¶ 50–55, 124). In that regard, Petitioner further contends Rabbe’s disclosure of semi-rigid rubber or other material having the same properties “would have suggested to a [skilled artisan] to consider thermoplastics,” which were “well-known materials in the art, and thus logically [also would have suggested] thermoforming, which was well known for shaping thermoplastics.” *Id.* (citing Ex. 1003 ¶ 124).

Petitioner also points to Yung’s disclosure of a multi-layer vehicle floor mat with a middle “plastic layer [that] is ‘flexible, lightweight, polyethylene (PE) or polyethylene-vinyl acetate (EVA) foam.’” Pet. 36 (citing Ex. 1006 ¶ 11). According to Petitioner, “PE was and still is a well-known thermoplastic.” *Id.* (citing Ex. 1003 ¶ 125; Ex. 1007, 28 (Table 2.2)).

Petitioner contends “[t]hermoforming Rabbe’s floor tray from a sheet of thermoplastic, as disclosed in Yung, would have been a simple combination of known prior art elements (Rabbe’s floor tray and Yung’s thermoplastic) according to a known technique (thermoforming) to achieve predictable results (thermoformed tray).” Pet. 37 (citing Ex. 1003 ¶ 124); *see also id.* at 62 (“combining the teachings of Rabbe and Yung (and Gruenwald) would have been applying a known technique (thermoforming) to a known product (vehicle floor tray)”) *id.* at 62–63 (arguing Gruenwald is “an ‘all-encompassing treatise on thermoforming technology” and evidences a skilled artisan’s “background knowledge.”). Petitioner further contends a skilled artisan would have recognized the short lead times and low cost of molds as favoring thermoforming over other methods of manufacture. *Id.* at 37 (citing Ex. 1003 ¶¶ 31–33; Ex. 1007, 35). Petitioner also contends a skilled artisan would have “been aware of numerous other prior art floor trays made of thermoplastic using the low-cost, versatile thermoforming process.” *Id.* at 61 (citing Ex. 1003 ¶ 165).

IPR2020-01139
Patent 8,382,186 B2

Patent Owner, in turn, contends Petitioner’s proposed combination does not teach a floor tray thermoformed from a sheet of thermoplastic polymeric material. PO Resp. 13–19; *see also* Sur-Reply 32 (“Yung unequivocally **does not** disclose that its mat is thermoformed.”), 38 (“Rabbe’s disclosure of natural rubber would not have led a POSITA to thermoformable thermoplastic materials.”). Petitioner contends these arguments “pertain to motivation to combine—not missing elements.” Pet. Reply 9. Because Petitioner does not dispute the preamble of claim 1 is limiting, we evaluate whether the combination discloses the subject matter of the preamble.¹⁰

We have reviewed Petitioner’s arguments and the underlying evidence cited in support and are persuaded that the combined teachings of Rabbe, Yung, and Gruenwald teach the limitations of the preamble and further Petitioner has articulated a sufficient motivation to combine the teachings.

We now turn to Patent Owner’s contentions relating to the subject matter of the preamble.

(1) Does Yung Teach or Suggest Thermoforming?

Patent Owner contends Petitioner misrepresents that “Yung teaches thermoformed floor mats” and that “Yung disclosed doing so from a sheet of polyethylene (PE).” PO Resp. 14. According to Patent Owner, “Yung teaches **compression molding** a three-layer laminate that includes a layer of

¹⁰ Many of Patent Owner’s arguments with respect to the preamble are duplicative of some of Patent Owner’s arguments regarding motivation to combine. *See, e.g.*, PO Resp. 53 (arguing a skilled artisan would not have been motivated to thermoform Rabbe’s tray). In this section, we address Patent Owner’s contentions related to whether the Petition establishes that the combined teachings of Rabbe, Yung, and Gruenwald disclose the limitations of the preamble.

IPR2020-01139
Patent 8,382,186 B2

PE **foam** or ethylene-vinyl acetate (EVA) **foam**.” *Id.* (citing Ex. 2023, 3, 6, 7, 10; Ex. 2041 ¶¶ 128–129). Patent Owner also contends “Yung describes that its laminated body is ‘embossed to form multiple water collection grooves on the mat body **upper surface**.” *Id.* at 17 (citing Ex. 1006, claim 6; Ex. 2041 ¶ 137). In support of this contention, Patent Owner relies on Dr. Osswald’s testimony that Yung’s disclosure of embossing “points to the compression molding process because embossing of plastics with large features such as the channels and umbos in Yung is *typically* done by compression molding.” *Id.* at 17–18 (citing Ex. 2041 ¶ 137) (emphasis added). Resolving this contention requires analyzing several questions embedded in the contention.

(a) Is Yung Limited to Compression Molding?

Patent Owner contends Yung’s mat is compression molded, not thermoformed, because of disclosure in a Chinese patent application which Patent Owner contends is related to Yung. PO Resp. 14–16 (citing Ex. 2023) (referred to by Patent Owner as “Yang”). Patent Owner notes that Yung is a continuation-in-part of U.S. Patent Application No. 09/354,067 which issued as U.S. Patent No. 6,262,667 (“the ’667 patent”). Ex. 1006, code (63). Patent Owner further notes that the ’667 patent claims priority to Yang (foreign application CN87212432). Ex. 2012, code (30). Patent Owner contends that Yung, the ’667 patent, and Yang “involve the exact same floor mat with the exact same illustrations” and that *Yang* “discloses no less than **four different times** that Yung’s floor mat was **compression molded**.” PO Resp. 15 (citing Ex. 2023, 3, 6, 7, 10). Patent Owner contends Yang proves Yung “disclosed compression molding not thermoforming.” *Id.* at 14.

IPR2020-01139
Patent 8,382,186 B2

Petitioner, in turn, responds Yung does not claim priority to Yang and does not incorporate the '667 patent nor any other application by reference. Pet. Reply 20 (citing Ex. 1006, cover page). Petitioner contends because the '667 patent does not mention compression molding, it “is meant to encompass *more* molding techniques than compression molding, such as thermoforming.” *Id.* Petitioner further contends “Yung broadens [the '667 patent]’s disclosure of a polyvinyl chloride middle layer with a more generic plastic layer” making Yung more inclusive than Yang. *Id.* (citing Ex. 1041 ¶¶ 116–118; Ex. 1059 ¶ 11).

For the following reasons, we agree with Petitioner that Yung is not limited to compression molding and suggests using materials that can be thermoformed.

First, the Petition does not rely on Yung alone to teach thermoforming. Pet. 37 (“Thermoforming Rabbe’s floor tray from a sheet of thermoplastic, as disclosed in Yung, would have been a simple combination of known prior art elements . . . according to a known technique (thermoforming).”), 62 (“Gruenwald, an ‘all-encompassing treatise on thermoforming technology.”). The Petition points to the material Yung discloses for its middle layer, PE, and argues PE is a well-known thermoplastic which, according to Petitioner, suggests using a sheet of thermoplastic to form Rabbe’s tray. Pet. 36–37, 61 (arguing a skilled artisan would have considered “Yung, which teaches that vehicle floor trays can be manufactured with rigid or semi-rigid thermoplastic material”), 65 (A skilled artisan “would have sought to use the PE material disclosed by Yung for Rabbe’s floor tray.”); *see also* Pet. Reply 10 (arguing that Petitioner “never proposed bodily incorporation of Yung and Rabbe.”); Tr. 14–15. Patent Owner, thus, conflates Petitioner’s proposal to use PE, as disclosed in Yung,

IPR2020-01139
Patent 8,382,186 B2

with Petitioner’s contention that the combined teachings of Rabbe, Yung, and Gruenwald suggest thermoforming Rabbe’s tray.

Second, because Yung does not claim priority to Yang, does not incorporate Yang’s disclosure by reference, and does not explicitly describe compression molding or any other manufacturing process, we find a skilled artisan would not interpret Yung’s disclosure as limited to fabricating a vehicle floor mat by compression molding. Ex. 1041 ¶¶ 116–118. We agree with Petitioner that, even if Patent Owner were correct and Yung’s mat is compression molded, Patent Owner’s contention is based on a bodily incorporation of Yung and Rabbe. *See In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements.”); *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

For these reasons, we disagree with Patent Owner’s sweeping assertion that Petitioner “attempts to rewrite Yung beyond what it *actually* discloses” (Sur-reply, 32) and find that Yung is not limited to compression molding.

(b) Is Yung’s Middle Layer “Foamed” PE?

Patent Owner also contends because Yung’s “middle layer is made of ‘waterproofed *foamed* PE or EVA”, “[i]t would not be possible to thermoform a foamed layer without damaging the fine foam structure of the material and leaving it inoperable for its intended purpose.” Pet. 17 (citing Ex. 1006 ¶ 11; Ex. 2041 ¶¶ 136, 143, 148, 154); *see also* Sur-reply 22 (arguing the Petition is fatally defective because it “relied upon PE, a standalone-material not disclosed in Yung.”). Petitioner, in turn, contends

IPR2020-01139
Patent 8,382,186 B2

“Yung is not limited to polyethylene foam” but “provides as *examples* of its plastic middle layer without limiting the polyethylene to a polyethylene foam.” Pet. Reply 16–17 (citing Ex. 1006 ¶ 11; Ex. 1041 ¶¶ 92–95).

For the following reasons, we do not agree with Patent Owner’s contention that Yung’s middle layer is limited to *foamed* PE.

Yung states, “The material of the above mentioned middle plastic plate or layer (2) as a flexible lightweight, and waterproof Polyethylene (PE) or Polyethylene– Vinyl Acetate (EVA) *foam*.” Ex. 1006 ¶ 11 (emphasis added). Patent Owner assertion that Yung’s middle layer is “foamed” PE is an attempt to obfuscate the plain language in Yung by rearranging the actual words in this sentence by referring to Yang’s disclosure. Patent Owner attempts to incorporate Yang’s disclosure into Yung by placing “foamed” *prior to* PE and EVA. PO Resp. 17; *see also id.* at 15 (arguing Yang discloses “waterproof ***foamed polyethylene (PE) or ethylene-vinyl acetate copolymer.***” (citing Ex. 2023, 7; Ex. 2039, 297:8–298:8.)). Regardless of Yang’s disclosure, Yung does not claim priority to Yang or incorporate Yang’s disclosure by reference. Based on the plain language of Yung, we find a skilled artisan would have understood Yung discloses polyethylene (foamed or unfoamed) or polyethylene vinyl acetate foam as its middle layer. Ex. 1003 ¶ 110; Ex. 1006 ¶ 11; Ex. 1041 ¶ 95. In particular, we credit Dr. Koch’s testimony that a skilled artisan “would have viewed Yung’s disclosure as encompassing a variety of polyethylene materials and readily selected an appropriate polyethylene for a floor tray” because it is consistent with the actual broad disclosure of materials described in Yung. Ex. 1041 ¶ 95.

IPR2020-01139
Patent 8,382,186 B2

(c) Can “foamed” PE be Thermoformed?

Based on the testimony of Dr. Osswald, Patent Owner contends, “It would not be possible to thermoform a foamed layer without damaging the fine foam structure of the material and leaving it inoperable for its intended purpose.” PO Resp. 17 (citing Ex. 2041 ¶¶ 136, 143, 148, 154). We note Dr. Osswald does not cite to any corroborating evidence for this opinion in the cited paragraphs of his declaration. Nonetheless, even if Yung’s middle layer is foamed polyethylene, Mr. Strachan testifies “[l]ong before 2004, thermoforming foams was well within the level of ordinary skill in the art.” Ex. 1042 ¶ 84 (citing Ex. 1007, 112, 212; Ex. 1008, 739; Ex. 1057, 232; Ex. 1058, 1, 5; Ex. 1068, 1:23–27). In fact, polyethylene foam was used as early as 1976 as a material to thermoform vehicle floor coverings. Ex. 1058, 3;¹¹ *see also* Pet. Reply 18 (arguing Ex. 1058 discloses thermoforming automobile floor liners from polyethylene foam). We credit the testimony of Mr. Strachan over that of Dr. Osswald because of the extensive evidence corroborating Mr. Strachan’s testimony. Consequently, we disagree with Patent Owner that it would not be possible to thermoform a foamed PE layer without rendering it inoperable for its intended purpose.

(d) Does Yung’s tri-layer structure preclude thermoforming?

Patent Owner next contends “Yung describes a tri-layer mat having an upper polyester fabric, a middle-plastic foam plate or layer, and an under net lining in which ‘[a]ll three parts are stuck together, and bound to form a plate-shaped object.’” PO Resp. 16 (citing Ex. 1006 ¶ 5). Relying on Dr. Osswald’s testimony, Patent Owner contends a skilled artisan would

¹¹ We refer to the page number added to the original document by Petitioner.

IPR2020-01139
Patent 8,382,186 B2

recognize Yung’s tri-layer mat cannot be thermoformed because “a net fabric with yarns and threads can only shear, but not stretch” and “the three layers would not have the same melting point.” *Id.* (citing Ex. 2041 ¶ 134). According to Patent Owner, a skilled artisan would rule out thermoforming and turn to compression molding because “the thermoforming process is dominated by stretching of a heated sheet as it is drawn into the mold cavity” and Yung’s fabric and netting “would hinder any stretching of the composite sandwiched structure if one attempted to thermoform it.” *Id.* at 17 (citing Ex. 2041 ¶ 135).

Petitioner, in turn, contends the heat and pressure used for thermoforming is relatively low and that compression molding “uses pressure far exceeding pressures used in thermoforming.” Pet. Reply 17 (citing Ex. 1007, 16, 69; Ex. 1042 ¶¶ 89–90). Petitioner further contends “it was common to thermoform laminate structures, even when those materials did not have the same melting temperatures.” *Id.* at 18 (citing Ex. 1008, 704; Ex. 1042 ¶¶ 73–83, 91–97). Petitioner further contends that a prior art reference, Bailey (Ex. 1053), discloses a structure similar to Yung “in which the ‘extruded thermoformable material 32 facilitates molding of the composite structure into the desired permanent configuration,’ even with other layers.” *Id.* at 18–19 (citing Ex. 1053, 4:53–59, 4:64–66, 5:31–33, 5:68–6:6). According to Petitioner, adding Yung’s polyester fabric layer and net lining does not prevent thermoforming. *Id.* at 19 (citing Ex. 1041 ¶¶ 103–108; Ex. 1042 ¶¶ 71–81). For the following reasons, Patent Owner’s contention that Yung’s tri-layer structure prevents thermoforming is unavailing.

Patent Owner bases this contention on the declaration testimony of Dr. Osswald. Dr. Osswald’s testimony is primarily a list of his

IPR2020-01139
Patent 8,382,186 B2

disagreements with Dr. Koch’s deposition testimony with little, if any, corroborating evidence to support his position other than limited citations to Yung and Yang. *See* Ex. 2041 ¶¶ 131–138. Mr. Strachan testifies that Yung’s fabric layer would shear and stretch and supports this testimony with reference to corroborating evidence. Ex. 1042 ¶ 83 (citing Ex. 1008, 219; Ex. 1066, 4:23–25). Mr. Strachan supports Petitioner’s position that compression molding requires higher pressure than thermoforming and opines that, if Dr. Osswald is correct that Yung’s mat is compression molded, then it can also be thermoformed. *Id.* ¶¶ 89–90 (citing Ex. 1007, 16, 69; Ex. 1008, 19). We credit Mr. Strachan’s testimony because it is supported by corroborating evidence. Dr. Koch, relying on Mr. Strachan’s testimony, similarly testifies that Yung’s mat can be thermoformed and points to Bailey as disclosing a structure similar to Yung that is thermoformed. Ex. 1041 ¶¶ 103–108. For these reasons, we disagree with Patent Owner that Yung’s tri-layer structure precludes thermoforming.

(e) Does Yung’s Embossing Preclude Thermoforming?

Based on Dr. Osswald’s testimony, Patent Owner contends “embossing of plastics with large features such as the channels and umbos in Yung is *typically* done by compression molding.” PO Resp. 17–18 (citing Ex. 2041 ¶ 137) (emphasis added). Paragraph 137 of Dr. Osswald’s declaration cites no corroborating evidence for this opinion regarding a “typical” method for embossing plastics.

Petitioner counters (Pet. Reply 19) with the testimony of Mr. Strachan, who cites corroborating evidence that “embossing or printing can create textured surfaces or simulate cloth and wood patterns. Finishing and decorating steps are frequently applied to thermoplastics and are,

IPR2020-01139
Patent 8,382,186 B2

therefore, also suitable for thermoformed parts.” Ex. 1042 ¶ 99 (citing Ex. 1007, 205) (emphasis omitted). Mr. Strachan provides citation to corroborating evidence indicating that automotive floor mats and liners were known to be produced using thermoforming and embossing. *Id.* ¶ 100 (citing Ex. 1067, 4).

We credit the testimony of Mr. Strachan over that of Dr. Osswald because it is supported by corroborating evidence. Regardless of whether embossing was “typically” done by compression molding, the fact that Yung’s mat is embossed does not preclude thermoforming Yung’s mat.

(2) Does Rabbe’s Disclosure of Semi-Rigid Rubber Preclude Thermoforming?

Patent Owner contends “Rabbe’s tray is made of semi-rigid rubber, which is not a thermoplastic and not thermoformable” (PO Resp. 13–14) and that “Gruenwald does not discuss vehicle floor trays, let alone thermoforming them.” *Id.* at 13–14, 18.

For the following reasons, we do not agree with Patent Owner’s contention.

First, Rabbe’s disclosure is not limited to semi-rigid rubber but includes “other material having the same properties.” Ex. 1005, code (57). Petitioner responds a skilled artisan “would have considered Rabbe’s teachings to include thermoplastic elastomers” and “that thermoplastic materials would qualify as Rabbe’s other ‘material having the same properties.’” Pet. Reply 13 (citing Ex. 1005, 1:16–19; Ex. 1041 ¶¶ 80–83, 136–138). Petitioner contends the disclosed properties of Rabbe’s material are “semi-rigid yet flexible” and “waterproof.” *Id.* (citing Ex. 1005, 1:13–26; Ex. 1041 ¶ 80). Petitioner further contends many thermoplastics have these properties “including polyethylene and foamed polyethylene.” *Id.*

IPR2020-01139
Patent 8,382,186 B2

(citing Ex. 1009, 202, Ex. 1041 ¶ 80; Ex. 1042 ¶¶ 49–54; Ex. 1057, 228–231). We agree with Petitioner based on our review of the evidence and testimony cited by Petitioner.

Second, Gruenwald is a treatise on thermoforming regardless of whether it specifically discusses thermoforming a vehicle floor tray. In addition, as Petitioner notes, Patent Owner’s witnesses “admitted ‘custom-thermoformed floor trays [were] on the market’ before 2004.” Pet. Reply 9; *see* Ex. 1047, 47:7–48:10.

Consequently, these contentions concerning Rabbe and Gruenwald are an attack on the references individually while the challenge is based on the combined teachings of Rabbe, Yung, and Gruenwald. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (one cannot show nonobviousness by attacking references individually when the rejection is based on a combination of references.).

For all the foregoing reasons, the combined teachings of Rabbe, Yung, and Gruenwald teach or suggest the subject matter of the preamble of claim 1. We evaluate the parties’ respective contentions concerning motivation to combine separately below and find that Petitioner articulates reasons supported by a rational underpinning to combine the teachings of Rabbe, Yung, and Gruenwald.

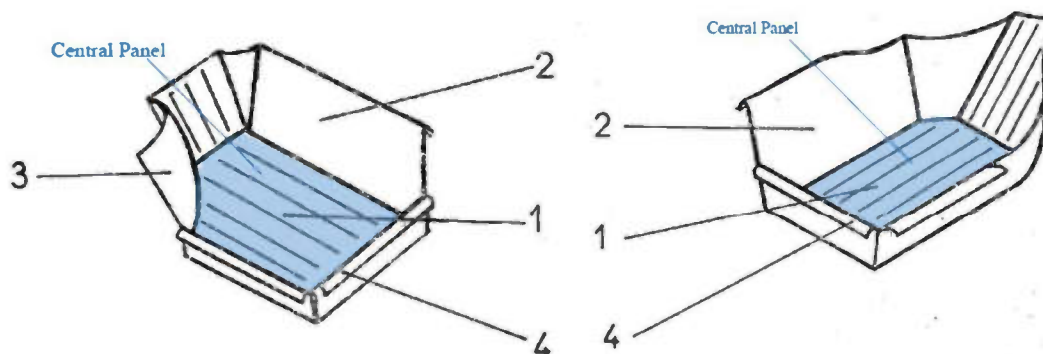
b) Element 1a¹²

Element 1a recites: “a central panel substantially conforming to a floor of a vehicle foot well.” Ex. 1001, 19:38–39. Petitioner submits Rabbe’s floor tray, as shown in blue on its annotated

¹² We use Petitioner’s claim element labels for ease of reference.

IPR2020-01139
 Patent 8,382,186 B2

versions of Rabbe's Figures 3 and 4 (reproduced below), disclose the recited central panel. Pet. 37.



EX1005, FIGs. 3-4 (annotated).

Petitioner's annotated versions of Rabbe's Figures 3 and 4, which are perspective views of Rabbe's protective tray, indicate in blue the bottom panel which would cover the floor of the vehicle that Petitioner contends corresponds to the recited central panel. Pet. 37.

Petitioner points to Rabbe's disclosure that "the floor is totally covered" and "raised edges 2 and 3 [of the tray] conform to the topography of the interior," that corresponds to the requirement of "substantially conforming to a floor." Pet. 38 (citing Ex. 1005, code (57), 1:1-6, Figs. 3, 4; Ex. 1003 ¶¶ 128-129).

Patent Owner does not dispute Petitioner's contentions concerning this claim element. See PO Resp. 12-13.

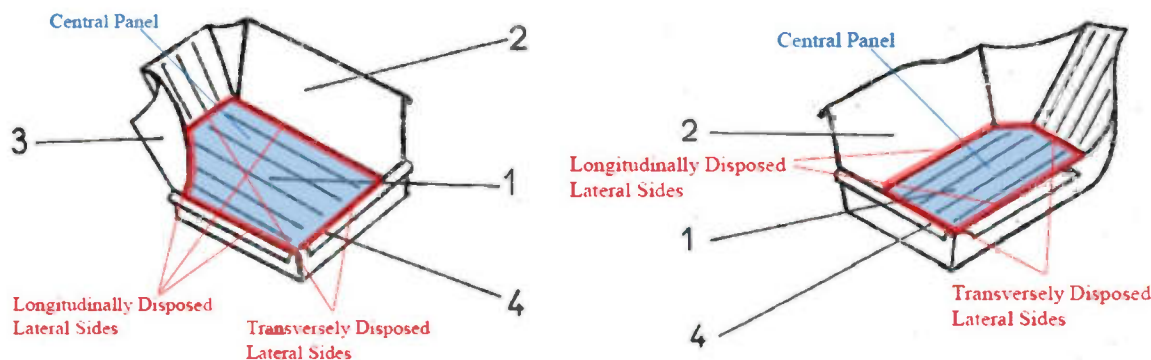
Based on the evidence cited by Petitioner, Rabbe discloses claim element 1a.

c) Element 1b

Element 1b recites: "the central panel of the floor tray having at least one longitudinally disposed lateral side and at least one transversely disposed lateral side." Ex. 1001, 19:39-41. Petitioner submits Rabbe's floor tray, as shown in annotated versions of Rabbe's Figures 3 and 4

IPR2020-01139
 Patent 8,382,186 B2

(reproduced below), and Yung's floor tray as shown in its Figure 1, each discloses element 1b. Pet. 39–40 (citing Ex. 1005, Figs. 3, 4; Ex. 1006, Fig. 1; Ex. 1003 ¶¶ 130–131).



EX1005, FIGS. 3-4 (annotated).

Petitioner's annotated versions of Rabbe's Figures 3 and 4, which are perspective views of Rabbe's protective tray, indicate in red the lower edge of side panels extending upward from the central panel of Rabbe that Petitioner contends correspond to the recited lateral sides. Pet. 39.

Patent Owner does not dispute Petitioner's contentions concerning this claim element. See PO Resp. 12–13.

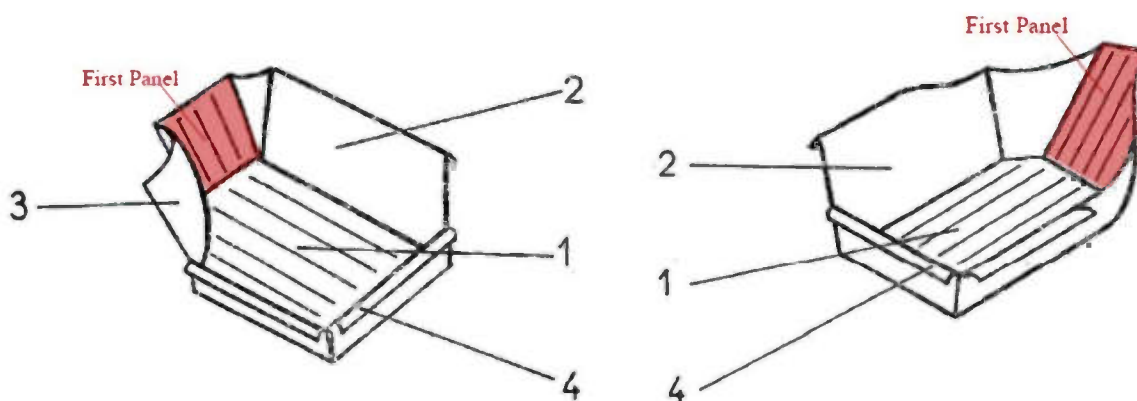
Based on the evidence cited by Petitioner, Rabbe discloses claim element 1b.

d) Element 1c

Element 1c recites: "a first panel integrally formed with the central panel of the floor tray, upwardly extending from the transversely disposed lateral side of the central panel of the floor tray, and closely conforming to a "first foot well wall." Ex. 1001, 19:42–45. Petitioner submits that Rabbe's floor tray, as shown in annotated versions of Rabbe's Figures 3 and 4 (reproduced below) in light of the teachings of Yung floor tray as shown in

IPR2020-01139
 Patent 8,382,186 B2

its Figure 1 discloses element 1c. Pet. 41–42 (citing Ex. 1005, 1:1–6, 1:24–26, Figs. 3, 4; Ex. 1003 ¶ 132).



EX1005, FIGs. 3-4 (annotated).

Petitioner’s annotated versions of Rabbe’s Figures 3 and 4, which are perspective views of Rabbe’s protective tray, highlight the claimed first panel in red which extends upward from the central panel toward the front of the vehicle. Pet. 42.

Petitioner contends that because Rabbe’s floor tray is formed of semi-rigid rubber or other material with the same properties, Rabbe discloses or suggests to a skilled artisan “that the floor tray is formed from a single integral material.” Pet. 41 (citing Ex. 1003 ¶¶ 132, 133; Ex. 1005, Abstract). Petitioner further contends a skilled artisan “would have understood that when thermoforming Rabbe’s floor tray (in view of the teachings of Yung and Gruenwald), the floor tray is formed from a single sheet of thermoplastic—so all of the panels are integrally formed.” *Id.* (citing Ex. 1003 ¶¶ 132–133; Ex. 1006, Abstract, ¶ 11, Fig. 1; Ex. 1007, 1–2, 35, 47, 121).

Patent Owner disputes that Rabbe’s tray satisfies the “integrally formed” limitation. PO Resp. 43. In particular, Patent Owner contends “Rabbe, properly translated describes its floor tray as an ‘assembly,’ which

IPR2020-01139
Patent 8,382,186 B2

suggests to a [skilled artisan] that Rabbe contemplated *assembling* his tray from multiple pieces of rubber (e.g., using well-known and commonly available adhesives.)” *Id.* (citing Ex. 2041 ¶ 83). Relying on Dr. Osswald’s testimony, Patent Owner contends a skilled artisan would have understood that the presence of undercuts, flanges and straight corners in Rabbe preclude integral formation. *Id.* at 44–45 (citing Ex. 2041 ¶¶ 86–91).

We do not agree with Patent Owner that the word “assembly” in its translation of Rabbe supports a finding that Rabbe’s floor tray is fabricated from multiple pieces adhered to one another. As Petitioner correctly points out, “Rabbe never mentions forming separate pieces and gluing or stitching them together.” Pet. Reply 14 (citing Ex. 1005, 1:1–2:16; Ex. 1041 ¶¶ 64–65; Ex. 1047, 182:14–18). Further, we also agree with Petitioner that Patent Owner’s assertion “ignores that thermoforming floor trays was ‘within the basic knowledge of a’” skilled artisan. *Id.* (citing Ex. 1003 ¶ 124; Ex. 1012, 1:14–18, 1:47–50; Ex. 1013, Abstract, 1:54–59). We credit Dr. Koch’s testimony that “‘assembly’ is a term used in the industry to refer generically to a finished product, however it is made” and “If you can mold all your parts in one piece, that’s what you do.” Ex. 1041 ¶ 64; Ex. 2039, 184:23–186:1.

As to Dr. Osswald’s testimony regarding the presence of undercuts, sharp corners, and flanges, which allegedly teach that Rabbe’s floor tray is not integrally formed, we disagree. Rather, we agree with and credit Dr. Koch’s testimony which is supported by corroborating evidence that Rabbe’s floor tray, even with the supposed sharp corners, deep draws, and undercuts, can be thermoformed. Ex. 1041 ¶¶ 84–91; *see also, e.g., id.* ¶ 87 (“flanges can easily be thermoformed. . . . Prior art references, such as Bailey [Ex. 1053], disclose thermoformed products with similar flanges”

IPR2020-01139
Patent 8,382,186 B2

(citing Ex. 1053, 6:1–33, Fig. 4; Ex. 1008, 0516–0517)). We further credit Mr. Strachan’s testimony that thermoforming parts with undercuts was commonplace at the time of the invention. *See* Ex. 1042 ¶¶ 66–69; *see also id.* ¶ 67 (“a POSA would have understood how to account for undercuts by making modifications to the thermoform mold . . . it was commonplace before 2004.”).

Based on the evidence cited by Petitioner and after considering Patent Owner’s contentions, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose or suggest the “integrally formed” limitation.

Petitioner next contends “Rabbe describes that the sidewalls ‘*perfectly conform to the contour of the vehicle interior* at the feet of the driver’” and that this perfect conformance satisfies the recited “closely conforming to the first foot well wall.” Pet. 41 (citing Ex. 1003 ¶ 132; Ex. 1005, 1:1–6). Petitioner also contends Rabbe discloses “[t]he rigidity of the material used presses the unit against the side walls of the vehicle.” *Id.* at 27 (citing Ex. 1005, 1:16–20; Ex. 1003 ¶ 108). Petitioner further contends “Rabbe’s ‘[] floor 1 is totally covered’ and the mat ‘does not change the desired aesthetic aspect’ of the vehicle designed by the manufacturer.” *Id.* at 42 (citing Ex. 1005, Abstract, 1:24–26).

Patent Owner, in turn, disputes Rabbe discloses the closely conforming limitation. PO Resp. 19–27. According to Patent Owner, it “discovered highly material errors in Petitioner’s translation of a key passage and obtained its own translation” of Rabbe. *Id.* (citing Ex. 2024). The key passage Patent Owner refers to, as translated by Petitioner, is “the sides of which perfectly conform to the contour of the vehicle interior at the feet of the driver.” Ex. 1005, 1:4–5. Patent Owner’s translation of this

IPR2020-01139
Patent 8,382,186 B2

passage is the “rims perfectly conform to the relief of the vehicle interior, near the driver’s feet.” Ex. 2024, 11.

Patent Owner contends “Petitioner’s translator translated the French word ‘rebord’ to mean ‘sides’ instead of ‘flanges.’” PO Resp. 20 (citing Ex. 1005, 14:3, 4:3; Ex. 2024 ¶ 23). According to Patent Owner, the French word “rebord” appears in five places in Rabbe but “[f]or each of these instances—*except the critical one*—Petitioner’s translator translated the term ‘rebord’ as ‘flange.’” *Id.* (citing Ex. 2024 ¶¶ 14, 20–22). During the deposition of Petitioner’s translator, Patent Owner contends the translator admitted that the word “sides” in this sentence should have been “flanges.” *Id.* at 21 (citing Ex. 2040, 32:7–16).

Patent Owner contends “under Petitioner’s translation, Rabbe at best discloses that the *flanges* perfectly conform to the contour of the vehicle interior” and “to the extent Rabbe teaches conformance, it was at the upper perimeter of its tray at the flanges/rims/edges, not the sides.” PO Resp. 22 (citing Ex. 2041 ¶ 113); *see also* Sur-reply 9–10 (“Rabbe describes an interference fit in which the top perimeter of the tray, and only the top perimeter of the tray, presses against the footwell walls.”). Patent Owner contends a skilled artisan “would have recognized that the flanges are intended to hold Rabbe’s tray in place by pressing against the sides of the foot well.” PO Resp. 22 (citing Ex. 2041 ¶ 114). To support this argument, Patent Owner points to two other portions of Petitioner’s translation. First, “Rabbe states that the ‘rigidity’ of the material used . . . ‘presses the unit against the sidewalls of the vehicle.’” *Id.* at 22–23 (citing Ex. 1005, 4:19–20). Second, “that ‘[s]ome flanges (4) will be retentively shaped so as to achieve better stability of the unit.’” *Id.* at 23 (citing Ex. 1005, 5:14–15). Patent Owner contends Rabbe would not have been concerned “about

IPR2020-01139
Patent 8,382,186 B2

augmenting the product’s stability” if its “floor tray would only conform at the upper perimeter/flanges, and not the sides.” *Id.* Patent Owner further contends a skilled artisan “would have recognized that the flanges in Rabbe’s tray would **prevent** the sides of the tray from ‘closely conforming’ to the sides of the vehicle footwell.” *Id.* at 24 (citing Ex. 2041 ¶ 115; Ex. 2043 ¶¶ 93–94). According to Patent Owner, if a flange contacts the foot well wall, it “pushes the side panel away from the adjacent foot well surface and prevents the side panel from ‘closely conforming’ to the surface of the vehicle foot well walls.” *Id.* (citing Ex. 2041 ¶ 115).

Patent Owner also contends “Petitioner’s Rabbe translation suffers from another flaw . . . that distorts the actual disclosure in an additional material way.” PO Reps. 24. Patent Owner contends in Petitioner’s translation, “the French word ‘les reliefs’ . . . was translated to ‘the contour,’ leading Petitioner to contend that Rabbe discloses perfect conformance ‘to the contour of the vehicle interior at the feet of the driver.’” *Id.* at 24–25 (citing Pet. 41, 47; Ex. 1005, 4:3–4). Patent Owner contends the proper English translation of the French word “les reliefs” is “relief.” *Id.* at 25 (citing Ex. 2024, 11:2–5; Ex. 2038). According to Patent Owner, this means “Rabbe at most describes that ‘the raised edges conform to **the relief** of the passenger compartment 2 and 3 and do not change the aesthetic appearance sought by the manufacturer” and “the ‘retaining’ rims (or flanges/edges), designated by reference numeral 4, ‘perfectly conform to **the relief** of the vehicle interior[.]’” *Id.* (citing Ex. 2024, 10, 11:2–5). From this, Patent Owner contends a skilled artisan “would understand that the ‘relief’ to which Rabbe’s flanges/rims/edges purportedly conform refers to the differences in height of the interior of the vehicle.” *Id.* at 26 (citing Ex. 2041 ¶ 118; Ex. 2049, 4). Patent Owner contends that Rabbe’s claim 1 confirms that “what

IPR2020-01139
Patent 8,382,186 B2

Rabbe thought was inventive . . . was that the *varying height* of the flanges/rims/edges would match the ‘relief’ of the foot well.” *Id.* (citing Ex. 2024, 11:12–13, 13:3–4).

Petitioner does not dispute Patent Owner’s contention that its translation of the disputed sentence in Rabbe should refer to “flanges” not “sides.” *See* Pet. Reply 3–7. Rather, Petitioner contends that four other portions of Petitioner’s translation “show that Rabbe discloses the conformance limitations.” *Id.* at 3 (citing Ex. 1041 ¶¶ 20–22). First, that “Rabbe’s raised edges are ‘presse[d] . . . against the walls,’ ‘conform to the topography of the interior and do not change the aesthetics desired by the manufacturer.” *Id.* at 4 (citing Ex. 1005, Abstract). Second, “Rabbe’s ‘raised edges (2) of unequal heights conform[] to the interior contour of the vehicle,” *Id.* (citing Ex. 1005, 2:7–9). Third, “Rabbe’s protective tray ‘conforms to the contour of the vehicle interior.” *Id.* (citing Ex. 1005, 1:16–20). Fourth, “the ‘thinness of the material used only encroaches on a few millimeters of the space designed by the vehicle manufacturer, *and thus* does not change the desired aesthetic aspect.” *Id.* at 5 (citing Ex. 1005, 1:24–26). According to Petitioner, “[t]hese teachings, even without the disputed sentence, disclose that Rabbe’s side panels closely conform to the vehicle footwell.” *Id.* (citing Ex. 1041 ¶¶ 21–22). Petitioner contends that “because Rabbe’s ‘raised edges’ are ‘presse[d] . . . against the walls,’ a [skilled artisan] would have understood Rabbe’s side panels have substantial contact with the vehicle footwell.” *Id.* (citing Ex. 1005, Abstract; Ex. 1041 ¶ 22).

Petitioner also contends Patent Owner’s translation of Rabbe discloses the conformance limitations. Pet. Reply 5 (citing Ex. 1041 ¶ 26; Ex. 2024, 10, 11:13–17, 12:1–3, 13:7–8, 13:9–11). Petitioner points to several

IPR2020-01139
Patent 8,382,186 B2

portions of the Patent Owner translation in support of this contention. First, “the floor tray’s stiffness ‘*flattens the raised edges against the walls*’ of the vehicle.” *Id.* (citing Ex. 2024, 10, 11:16–17, 13:9–11). Second, “the ‘raised edges *conform* to the relief of the passenger compartment.’” *Id.* (citing Ex. 2024, 10, 11:13–16, 12:1–3, 13:7–8). Third, “[t]he thinness of the *material used only infringes a few millimeters into the space* designed by the vehicle manufacturer and *therefore* does not change the aesthetic appearance sought.” *Id.* at 6 (citing Ex. 1041 ¶ 26; Ex. 2024, 11:20–22).

Petitioner next contends that “relief and contour are synonyms, and relief’s meaning to a [skilled artisan] is not limited to the heights at the upper edges of the footwell.” Pet. Reply 6 (citing Ex. 1041 ¶¶ 30–33; Ex. 1062; Ex. 2049). Petitioner counters Patent Owner’s contention concerning Rabbe’s claim 1 by pointing to Rabbe’s claim 2 and arguing that “conformance in claim 2 is different than simply matching the relief *height*.” *Id.* (citing Ex. 1041 ¶ 34; Ex. 2024, 13:7–8).

For the following reasons, we find Rabbe discloses the closely conforming limitation.

First, we find that the disputed sentence in Rabbe should refer to “flanges” not “sides” perfectly conforming based on the testimony of Petitioner’s translator. Ex. 2040, 32:7–16. Patent Owner’s translator does not contend that “flanges” is incorrect but prefers the word “rims.” See Ex. 2024 ¶ 14.

For clarity, we note that Patent Owner uses the following synonymous terms for the upper edge of the side panels of Rabbe’s tray: “the upper perimeter of its tray at the flanges/rims/edges,” that is, either flanges or rims or edges to correspond to the top portion of Rabbe’s side panels.” PO Resp. 22.

IPR2020-01139
Patent 8,382,186 B2

As discussed above in our claim construction analysis, we apply the plain and ordinary meaning of closely conforming, *i.e.*, a close spatial relationship between a first or second panel and a first or second foot well wall. We cannot determine this relationship from Rabbe's drawings because the vehicle foot well walls are not shown.

In our Decision on Institution, we based our preliminary finding on Petitioner's translation that Rabbe's sidewalls "perfectly conform to the contour of the vehicle interior at the feet of the driver." Dec. 20 ("Rabbe's disclosure of sidewalls that 'perfectly conform to the vehicle interior at the feet of the driver[?]' . . . encompasses 'closely conform[ing]'"); Pet. 41. This sentence, as translated by Petitioner, appeared to describe in words a close spatial relationship between the first panel and first foot well wall. We now evaluate Rabbe's disclosure without the benefit of the language "the sides of which perfectly conform."

There are two pertinent sentences in Rabbe that taken together weigh in favor of Petitioner's position. Patent Owner's translation of these two sentences uses slightly different terminology, but, appears to be in substantial agreement with Petitioner's translation.

The first sentence as translated by Petitioner is "The flexibility of the material used makes it very handleable and the rigidity *presses the raised edges* against the walls." Ex. 1005, Abstract (emphasis added). In Patent Owner's translation, this sentence is translated as "The pliability of the material used gives it good handling and the stiffness *flattens the raised edges* against the walls." Ex. 2024, Abstract (emphasis added).

The second sentence in Petitioner's translation reads: "The rigidity of the material used *presses the unit* against the side walls of the vehicle." Ex. 1005, 1:19–20 (emphasis added). In Patent Owner's translation, the

IPR2020-01139
Patent 8,382,186 B2

sentence reads: “The stiffness of the material used *flattens the assembly* against the lateral walls of the vehicle.” Ex. 2024, 1:16–17 (emphasis added).

These two sentences describe distinct portions of Rabbe’s tray that are flattened or pressed against the walls of the vehicle. The first sentence requires the raised edges (or flanges or rims) to be in contact with the walls of the vehicle. This sentence aligns with the corrected version of Petitioner’s translation of the disputed sentence, *i.e.*, the *flanges* perfectly conform to the contour of the vehicle. The second sentence requires more than just the raised edges or flanges or rims to be in contact with the vehicle wall, *i.e.*, either the assembly or the unit.¹³

Patent Owner, relying on Dr. Osswald’s testimony, contends a skilled artisan would understand Rabbe’s “assembly” refers to the entire tray including the walls and the bottom. PO Resp. 43–44 (citing Ex. 2041 ¶¶ 84–85). But, regarding what is “pressed” or “flattened” against the walls of the vehicle, Patent Owner and Dr. Osswald take a different position and conflate the second sentence with the first sentence: “that flanges 4, not the sides, would contact the vehicle foot well.” Ex. 2041 ¶ 115. According to Dr. Osswald this results in “push[ing] the side panel *away* from the adjacent foot well.” *Id.*

Even if we were to accept Patent Owner’s contention that only the flanges at the top of the side wall contact the vehicle foot well and thereby push the side walls away from the vehicle walls, those facts would not be

¹³ Dr. Koch relies on this sentence in support of his opinions that Rabbe discloses close conformance. *See* Ex. 1041 ¶ 26.

IPR2020-01139
 Patent 8,382,186 B2

dispositive of whether Rabbe discloses close conformance when Figure 14 of the '186 patent is considered.

Figure 14 of the '186 patent is reproduced below:

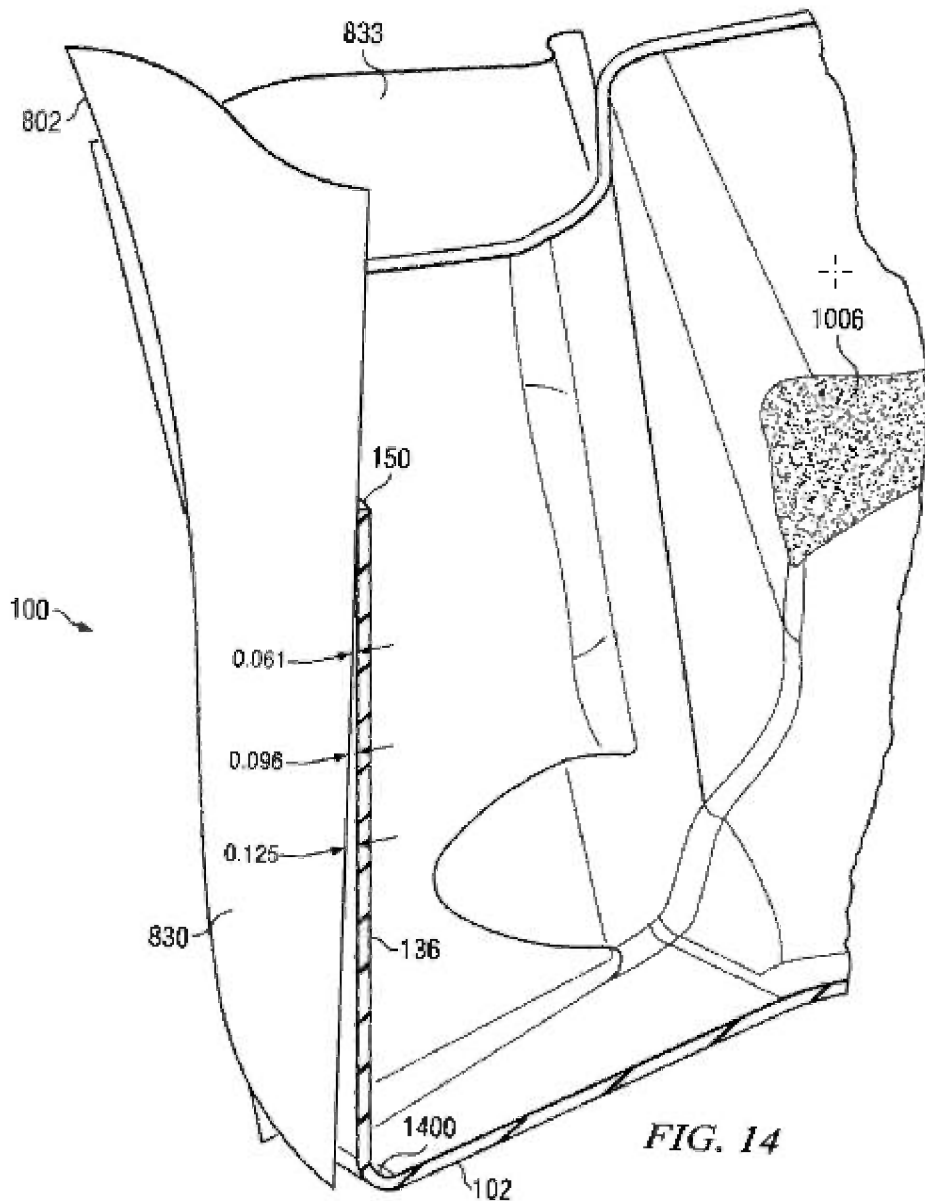


Figure 14 “is a detail of a kick plate region” of the vehicle floor tray illustrated in Figure 2 and Figure 13 of the '186 patent shown installed in the

IPR2020-01139
Patent 8,382,186 B2

vehicle foot well wall illustrated in Figure 8 of the '186 patent. Ex. 1001, 6:2–7.

In Figure 14, top margin 150 of tray side panel 136 contacts vehicle wall 830 in a manner similar to Patent Owner's assertion that Rabbe's tray contacts the vehicle wall only at the top perimeter of its side panel. Figure 14 illustrates tray side panel 136 gradually tapering away (pushed away in Dr. Osswald's terminology) from vehicle wall 150 from the point of contact at top margin 150 toward the bottom. Ex. 1001, 9:59–61, Fig. 14. The '186 patent describes the configuration in Figure 14 as "close conformance" but also shows the gap between the tray side panel and the vehicle wall becomes larger and at the bottom portion of Figure 14 is greater than 1/8 inch. *Id.* at 7:61–67; 9:59–10:3. When asked about Figure 14 of the '186 patent during the oral hearing, Patent Owner's counsel confirmed that "it's not the entire part that needs to be within one-eighth of an inch, there are some parts that don't need to be." Tr. 51. As discussed above, we do not construe close conformance as limited to the 1/8 inch gap over 90 per cent of the surface as shown in Figure 14.¹⁴

Because we do not perceive any material difference between Patent Owner's Figure 14 and Patent Owner's contention that only Rabbe's rim/flange/top perimeter contacts the vehicle foot well wall, we find that

¹⁴ In co-pending IPR2020-01142, we find that Rabbe does not disclose 1/8 inch conformity of a particular percentage of the first, second, and third tray walls and their corresponding foot well walls, as recited by independent claims 1, 5, and 9. *See* IPR2020-01142, Paper 80, 64–69. Because claim 1 before us does not recite those same precise conformance limitations, we reach a different conclusion here.

IPR2020-01139
Patent 8,382,186 B2

Rabbe discloses the close conformance limitation in claim 1 even under Patent Owner's and Dr. Osswald's narrow reading of Rabbe.

Patent Owner raises an additional issue in support of its close conformance contentions which we now address. Patent Owner contends Rabbe “purports to show vehicle floor trays for the driver and front-row passenger of a “Lada Niva 4x4.” PO Resp. 27 (citing Ex. 1005, 4:28–5:6; Ex. 2024, 11:24–33). In an attempt to prove Rabbe does not satisfy the close conformance limitations in claim 1, “PO purchased a 1984 Lada Niva.” *Id.* (citing Ex. 2042 ¶¶ 102–107, 109). Patent Owner “laser-scanned the front foot wells of the Lada Niva using the same equipment and software that it uses in the design and manufacture of its floor trays.” *Id.* at 27–28 (citing Ex. 2042 ¶¶ 110–116). Patent Owner then compared the results of the laser scans to the drawings in Rabbe. *See e.g. id.* at 28–29 (comparing Rabbe's Figs. 3,4 to a Lada-Niva scan). Patent Owner argues, based on its comparisons, that “it is clear that the side panels of Rabbe's trays ***did not conform at all*** to the walls of the foot wells” of the Lada Niva. *Id.* at 27 (citing Ex. 2041 ¶¶ 119–127).

Petitioner counters these comparisons are irrelevant because “it is well-settled that ‘arguments based on drawings not explicitly made to scale . . . are unavailing.’” Pet Reply 7 (citing *Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005)). Petitioner further contends Patent Owner's declarant, Mr. Granger, “admitted that Rabbe's drawings are ‘not to scale’” and he didn't “know how to compare a — drawing to a scan.” *Id.* at 8 (citing Ex. 1048, 191:20–21, 192:5–11; 192:15–17; Ex. 2126 ¶ 114). Patent Owner, in turn, argues it only relies on Rabbe's drawings for “‘overall proportions and shapes,’ not numerical dimensions.” Sur-reply 8.

IPR2020-01139
Patent 8,382,186 B2

When we review the disclosure of drawings in a prior art reference, we should “evaluate and apply the teachings . . . on the basis of what they reasonably disclose and suggest to one of ordinary skill in the art.” *In re Aslanian*, 590, F.2d 911, 914 (CCPA 1979); *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972). Further, “it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” *Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956 (Fed. Cir. 2000).

There are several issues with Patent Owner’s comparisons. First, Rabbe is silent on the scale of its drawings, does not show particular sizes, and the drawings can best be described as conceptual in nature. Second, Rabbe’s drawings **do not** illustrate the vehicle foot well walls. Patent Owner, thus, is not just relying on overall proportions and shape of Rabbe’s tray as shown in Rabbe’s drawings. In essence, Patent Owner attempts to insert its detailed scans of the Lada Niva foot well walls into Rabbe’s drawings. Rabbe’s conceptual drawings, however, do not reasonably disclose or suggest to one of ordinary skill in the art the detailed information of the Lada Niva foot well walls from Patent Owner’s scans. *See* PO Resp. 27–41. In fact, the omission of vehicle walls from the drawings supports an inference that Rabbe did not intend to limit its invention to only a tray to fit a Lada Niva or any other particular vehicle but was illustrating a concept for its tray design. *See also* Ex. 1005, Claim 1 (claiming “A protective tray for automobile or other vehicle” not for a Lada Niva), Claims 2, 5 (incorporating particular element numbers in Rabbe’s drawings). Third, Mr. Granger admits he doesn’t know how to “match a drawing to a scan” (Ex. 1048, 191:20–21) thus, calling into question the relevance of Patent Owner’s

IPR2020-01139
Patent 8,382,186 B2

comparison of Rabbe’s drawings to Patent Owner’s scans. For these reasons, we give no weight to Patent Owner’s comparisons of Rabbe’s drawings to the Lada Niva scans and do not disturb our finding that Rabbe discloses the close conformance limitations.

Based on the evidence cited by Petitioner and after considering Patent Owner’s contentions, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1c.

e) Element 1d

Element 1(d) recites “the first panel of the floor tray joined to the central panel of the floor tray by a curved transition.” Ex. 1001, 19:45–47. Petitioner contends Rabbe’s first panel is joined to the central panel. Pet. 42 (citing Ex. 1003 ¶ 134; Ex. 1005 Figs. 3, 4). According to Petitioner, a skilled artisan would have understood that when thermoforming Rabbe’s floor tray “it was desirable—and in fact the most logical option—to join the panels with a curved transition.” *Id.* (citing Ex. 1003 ¶ 134). Petitioner contends “Gruenwald explained, ‘avoidance of sharp corners’ is important in thermoforming because the material will thin significantly at sharp corners.” *Id.* at 44 (citing Ex. 1007, 37, 53). From this, Petitioner contends Gruenwald is clear that a skilled artisan would have sought “curved transitions between the panels—which were not only desirable, but the norm.” *Id.* at 44 (citing Ex. 1003 ¶ 135). Petitioner further contends “Yung discloses curved transitions at each of the lateral and transverse sides of the central panel.” *Id.* (citing Ex. 1003 ¶ 136; Ex. 1004, Figs. 3, 4). Based on the foregoing, Petitioner contends that a skilled artisan “thermoforming Rabbe’s floor tray using the thermoplastic materials disclosed in Yung would have been motivated to implement curved transitions . . . as explicitly taught in the thermoforming art” and this “would have been a simple

IPR2020-01139
 Patent 8,382,186 B2

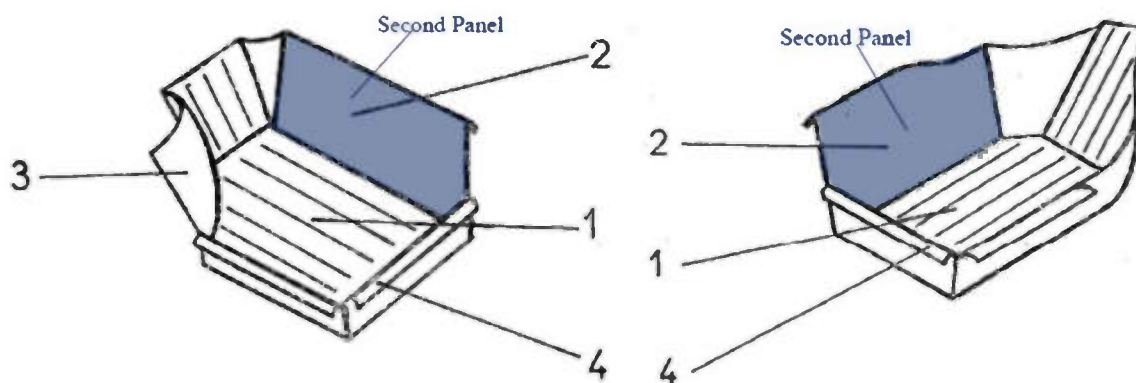
substitution of known prior art elements (Rabbe's floor tray with Yung's curved transitions) according to a known technique (thermoforming) to achieve predictable results." *Id.* at 45–46 (citing Ex. 1003 ¶ 137; Ex. 1007, 53.).

Patent Owner does not dispute Petitioner's contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1d.

f) Element 1e

Element 1e recites "a second panel integrally formed with the central panel of the floor tray and the first panel, upwardly extending from the longitudinally disposed lateral side of the central panel of the floor tray, and closely conforming to a second foot well wall." Ex. 1001, 19:48–20:3. Petitioner provides the following annotated version of Rabbe's Figures 3 and 4 in support of these contentions:



EX1005, FIGs. 3-4 (annotated).

Petitioner's annotated versions of Rabbe's Figures 3 and 4, which are perspective views of Rabbe's protective tray, highlight the claimed second

IPR2020-01139
Patent 8,382,186 B2

panel in blue extending upward from the central panel toward a side of the vehicle foot well. Pet. 47.

Petitioner contends this claim element contains substantially similar limitations as element 1c and that “Rabbe also discloses or at least suggests a second panel integrally formed with the central panel” for substantially the same reasons as element 1c. Pet. 46 (citing Ex. 1003 ¶¶ 132–133, 138–139; Ex. 1005, Figs. 3, 4; Ex. 1006, Abstract, ¶ 11, Fig. 1; Ex. 1007, 1–2, 35, 47, 121). Patent Owner relies on the same contentions as for element 1c. PO Resp. 13.

For the same reasons discussed above in connection with element 1c, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1e.

g) Element 1f

Element 1f recites “the second panel of the floor tray joined to the central panel of the floor tray and to the first panel of the floor tray by curved transitions.” Ex. 1001, 20:3–5. Petitioner relies on Figures 3 and 4 of Rabbe to satisfy the requirement that the second panel is joined to the first panel and second panel. Pet. 47 (citing Ex. 1003 ¶¶ 141–143; Ex. 1005, Figs. 3, 4). Regarding the curved transitions, Petitioner relies on substantially the same contentions as for element 1d. *Id.*

Patent Owner does not dispute Petitioner’s contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1f.

h) Element 1g

Element 1g recites “a reservoir disposed in the central panel of the floor tray.” Ex. 1001, 20:6. Petitioner contends “Although Rabbe discloses

IPR2020-01139
 Patent 8,382,186 B2

protecting the vehicle interior from water, mud, etc., and having portions of the central panel at different heights (corrugations), Rabbe does not expressly disclose a reservoir.” Pet. 48. Petitioner contends Yung discloses the reservoir. *Id.* In support of this contention, Petitioner provides the following annotated version of Yung’s Figures 1 and 3:

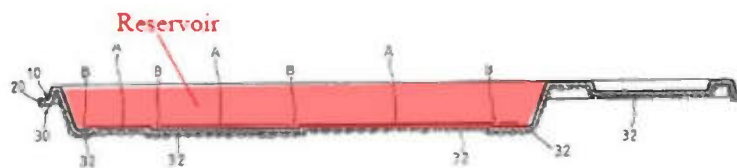
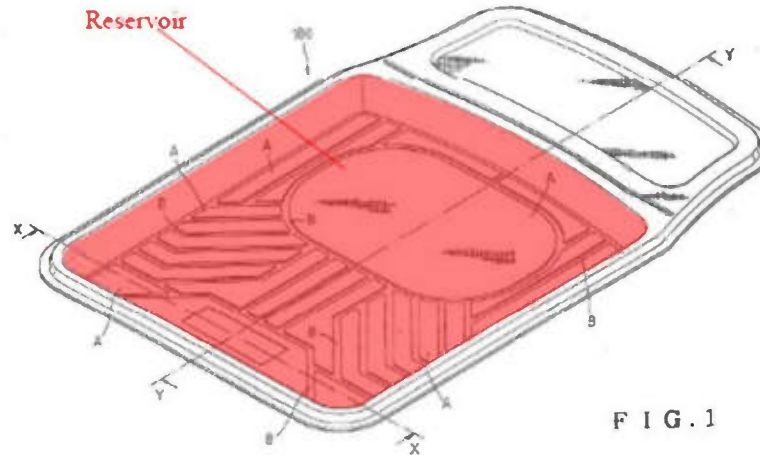


FIG. 3

Petitioner’s annotated version of Figures 1 and 3 of Yung show Yung’s floor tray with red highlighting and lettering to illustrate Yung’s reservoir. *Id.* at 49 (citing Ex. 1006, Figs. 1, 3). Petitioner contends a skilled artisan would have understood that Yung’s “deeper plate shaped object . . . is a reservoir disposed in Yung’s central panel.” *Id.* at 50 (citing Ex. 1003 ¶ 147; Ex. 1006 ¶ 13, Figs. 1–4). Petitioner reasons a skilled artisan would have been motivated to include a reservoir because Yung discloses using a reservoir “to ‘collect the muck on the shoes together’ and make it

IPR2020-01139
 Patent 8,382,186 B2

‘convenient for people to take the mat out to wash.’” *Id.* (citing Ex. 1003 ¶ 147; Ex. 1006 ¶ 13).

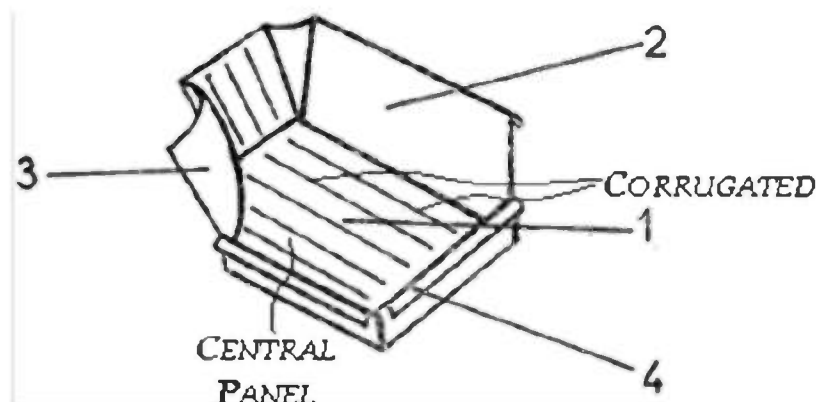
Patent Owner does not dispute Petitioner’s contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1g.

i) Element 1h

Element 1h recites “a plurality of upstanding, hollow, elongate baffles disposed in the reservoir.” Ex. 1001, 20:7–8. Petitioner contends Rabbe’s central panel is corrugated and the corrugations are baffles. Pet. 50–51 (citing Ex. 1003 ¶ 148; Ex. 1005, 3:17–19). Petitioner provides the following annotated version of Rabbe’s Figure 3 to support this contention:

RABBE – FIG. 3



Petitioner’s annotated version of Figure 3 of Rabbe illustrates the corrugations in the longitudinal direction from front to back in Rabbe’s central panel. *Id.* at 51 (citing Ex. 1005, Fig. 3).

Petitioner further contends “Yung’s umbos ‘can be designed as rectangle’ (i.e., elongated),” “are a plurality of upstanding, elongated baffles

IPR2020-01139
Patent 8,382,186 B2

that elevate the vehicle's occupant's feet above the reservoir of the central panel," and are hollow. Pet. 51–52 (citing Ex. 1003 ¶¶ 149, 150; Ex. 1006 ¶ 13, Fig. 1). According to Petitioner, "including hollow baffles, taught by Yung, in Rabbe's floor tray would have simply been a combination of prior art elements (Rabbe's corrugated floor tray and Yung's hollow baffles) according to known methods (shown in Yung, e.g., thermoforming discussed in Gruenwald) to yield predictable results." *Id.* at 53 (citing Ex. 1003 ¶ 151).

Patent Owner does not dispute Petitioner's contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1h.

j) Element 1i

Element 1i recites, "each of the baffles having at least two ends remote from each other." Ex. 1001, 20:8–9. Petitioner contends Rabbe's corrugations are disposed in a lengthwise direction and Yung's umbos can be designed as rectangles. Pet. 54 (citing Ex. 1005, 3:17–19, Figs. 3, 4; Ex. 1006 ¶ 13, Fig. 1). Based on this, Petitioner contends that "Rabbe's and Yung's baffles have at least two ends remote from each other." *Id.* (citing Ex. 1003 ¶ 52).

Patent Owner does not dispute Petitioner's contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, we find the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1i.

k) Element 1j

Element 1j recites "the central panel, the first panel, the second panel, the reservoir and the baffles each having a thickness from a point on the

IPR2020-01139
Patent 8,382,186 B2

upper surface to a closest point on the bottom surface thereof, said thicknesses, as a result of the tray being thermoformed from the sheet of thermoplastic polymeric material of substantially uniform thickness, being substantially uniform throughout the tray.” Ex. 1001, 20:9–16. Petitioner contends that element 1j essentially requires “the thickness of the thermoformed floor tray is substantially uniform.” Pet. 55–56 (citing Ex. 1003 ¶¶ 153–154; Ex. 1022, 209). Petitioner acknowledges “substantial thinning may occur during the thermoforming process resulting in a product that is not substantially uniform.” *Id.* at 56 (citing Ex. 1008, 525, 527; Ex. 1009, 22). But, according to Petitioner, a skilled artisan “would have understood how to control thinning and achieve a thermoformed part having substantially uniform thickness throughout.” *Id.* (citing Ex. 1003 ¶ 154; Ex. 1007, 167). Petitioner directs us to Gruenwald’s disclosure of methods “to control local thinning and produce parts having a more uniform wall thickness.” *Id.* (citing Ex. 1007, 164–167). Petitioner further reiterates its contention that a skilled artisan “would have been motivated to reduce thinning and achieve a substantially uniform thickness because thinning creates weak areas in thermoformed products.” *Id.* (citing Ex. 1003 ¶ 155–156).

Patent Owner does not dispute Petitioner’s contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1j.

l) Element 1k

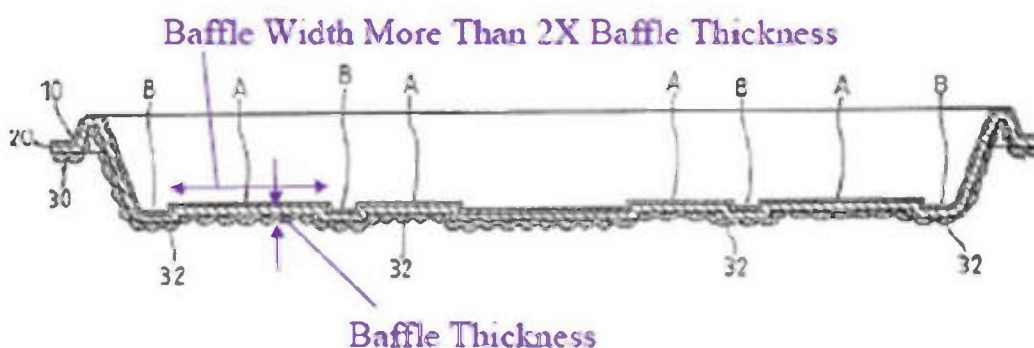
Element 1k recites “the baffles each having a width, in any horizontal direction, of more than two times its thickness.” Ex. 1001, 20:17–18. Petitioner contends Yung “discloses or at least suggests that each of the

IPR2020-01139

Patent 8,382,186 B2

baffles ('umbos' (A)) have a width in any horizontal direction, of more than two times its thickness." Pet. 57 (citing Ex. 1003 ¶ 157; Ex. 1006, Fig. 4).

In support of this contention, Petitioner provides the following annotated version of Yung's Figure 4:



F I G . 4

Petitioner's annotated version of Yung's Figure 4 is a cross-section of Yung's floor tray with arrows and text added by Petitioner pointing to the thickness and width of Yung's baffles. *Id.*

Petitioner contends during the prosecution of the '186 patent, applicant admitted "the 'hollowness' of the baffles is a necessary result of any thermoforming process." Pet. 57 (citing Ex. 1022, 208–209). Petitioner further contends "thermoforming involves pressing or draping a softened sheet of thermoplastic over a mold surface" resulting in "features formed into the side of the thermoformed part that do not come in contact with the mold will have a width greater than two times the thickness of the thermoplastic." *Id.* at 58 (citing Ex. 1003 ¶ 59; Ex. 1007, 35, 40).

Patent Owner does not dispute Petitioner's contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1k.

IPR2020-01139
Patent 8,382,186 B2

m) Element 11

Element 11 recites “the baffles adapted to elevate the shoe or foot of the occupant above fluid collected in the reservoir, and further adapted to impede lateral movement, induced by a change in vehicle speed or direction, of fluid collected in the reservoir.” Ex. 1001, 20:18–22. Petitioner contends Rabbe’s corrugations elevate the occupant’s feet above fluid collected in the central panel and Yung’s umbos likewise elevate the occupant’s feet above its reservoir. Pet. 58–59 (citing Ex. 1003 ¶ 160; Ex. 1005, 3:17–19, Figs. 3, 4; Ex. 1006 ¶ 13, Fig. 1). Petitioner further contends Rabbe’s longitudinal orientation of its corrugations impede lateral movement of fluid. *Id.* at 59 (citing Ex. 1003 ¶ 161; Ex. 1006, Fig. 1). Petitioner further contends Yung’s umbos are both longitudinally and laterally disposed and the longitudinal umbos impede lateral movement of fluid. *Id.* (citing Ex. 1003 ¶ 61; Ex. 1006, Fig. 1).

Patent Owner does not dispute Petitioner’s contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 11.

n) Element 1m

Element 1m recites “any portion of the reservoir connected to a remote portion of the reservoir by a path formed around ends of the baffles.” Ex. 1001, 20: 22–24. Petitioner contends Figure 1 of Yung “shows that any portion of the reservoir is connected to a remote portion of the reservoir by the paths of the grooves (B), which are interconnected and span the length and width of Yung’s reservoir.” Pet. 60 (citing Ex. 1006, ¶ 13, Fig. 1). Petitioner contends the “paths go around the ends of the baffles.” *Id.* (citing Ex. 1003 ¶ 163).

IPR2020-01139
Patent 8,382,186 B2

Patent Owner does not dispute Petitioner’s contentions concerning this claim element. *See* PO Resp. 12–13.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose claim element 1m.

o) Motivation to Combine

(1) Petitioner’s Contentions

Petitioner contends “[t]here were myriad reasons—expressly disclosed in the references and from a [skilled artisan]’s basic knowledge” why a skilled artisan would have combined the teachings of Rabbe, Yung, and Gruenwald” to manufacture Rabbe’s floor tray using a thermoforming process. Pet. 61–62 (citing, *inter alia*, Ex. 1003 ¶ 164). Petitioner begins with the proposition that “While Rabbe discloses that ‘[t]he protective tray [is] produced from semi-rigid rubber or another material having the same properties,’ it does not specify a method of manufacturing.” *Id.* Petitioner contends a skilled artisan would have turned “to references specifying known materials and methods for cost-effective manufacturing of vehicle floor trays” and would have been looked “to Yung, which teaches that vehicle floor trays can be manufactured with rigid or semi-rigid thermoplastic material.” *Id.* (citing Ex. 1003 ¶ 165; Ex. 1006 ¶ 10). As discussed above in connection with the preamble of claim 1, Petitioner relies on Yung’s disclosure of a middle layer fabricated from Polyethylene (PE) or Polyethylene-Vinyl Acetate (EVA) foam. *Id.* (citing Ex. 1006 ¶¶ 10–11). Petitioner further contends a skilled artisan would have “been aware of numerous other prior-art floor trays made of thermoplastic using the low-cost versatile thermoforming process” and would have been motivated “to manufacture Rabbe’s floor tray using a thermoforming process because of the suitability of thermoplastics and the thermoforming process to fulfill

IPR2020-01139
Patent 8,382,186 B2

Rabbe’s purposes.” *Id.* at 61–62 (citing Ex. 1003 ¶ 165; Ex. 1005, 1:1–6). Petitioner argues that “combining the teachings of Rabbe and Yung (and Gruenwald) would have been applying a known technique (thermoforming) to a known product (vehicle floor tray) that yielded predictable results (vehicle floor tray fitting the contours of vehicle interior).” *Id.* at 62 (citing Ex. 1003 ¶ 165).

Petitioner contends a skilled artisan would have considered Gruenwald because it is an “all encompassing treatise on thermoforming technology.” Pet. 62 (citing Ex. 1003 ¶ 166; Ex. 1007, ix). In particular, Petitioner directs us to disclosure in Gruenwald related to selecting lowest cost materials, molding considerations, forming equipment and processes to “produce consistently parts of acceptable quality, including acceptable trim edges.” *Id.* (citing Ex. 1007, 184). Petitioner also contends a skilled artisan would rely on Gruenwald for processes to control thinning that “occurs in non-uniform ways throughout a thermoformed object.” *Id.* at 62–63 (citing Ex. 1003 ¶ 168; Ex. 1007, 35, 37, 161, 164–167; Ex. 1008, 527, 529, 477; Ex. 1009, 42). According to Petitioner, combining Gruenwald’s teachings to limit non-uniform thinning with Rabbe and Yung is the simple application of known techniques to a known product to yield predictable results. *Id.* at 64 (citing Ex. 1003 ¶ 168).

Petitioner further contends an additional reason for combining Rabbe, Yung, and Gruenwald “would have been to improve Rabbe’s ‘corrugated . . . lengthwise’ baffles by making them hollow (as Yung disclosed).” Pet. 64. According to Petitioner, this “tak[es] advantage of the lighter weight afforded by thermoformed parts with raised features” and during prosecution, the applicant “admitted ‘*necessarily must be hollow* as they are all made by softening a sheet of substantially uniform thickness until the

IPR2020-01139
Patent 8,382,186 B2

sheet conforms on one side of the mold.” *Id.* (citing Ex. 1003 ¶ 169; Ex. 1022, 208–209). Petitioner further contends “it was well-known that thermoforming, producing hollow features molded from a sheet of thermoplastic, conserved weight and offered sufficient structural rigidity.” *Id.* at 64–65 (citing Ex. 1003 ¶ 169; Ex. 1023, 3:23–25; Ex. 1024, 1:53–55).

Petitioner further contends a skilled artisan would have been motivated to combine Rabbe, Yung, and Gruenwald “because Yung discloses a specific design and material for engaging the sidewalls of the vehicle foot well that would have been applicable to Rabbe.” Pet. 65 (citing Ex. 1003 ¶ 171; Ex. 1006 ¶ 11). According to Petitioner, polyethylene, as disclosed in Yung, “is a thermoplastic that offers sufficient rigidity after thermoforming to accomplish Rabbe’s functional goal of pressing the unit against the side walls of the vehicle.” *Id.* (citing Ex. 1003 ¶ 171; Ex. 1005, 1:19–20; Ex. 1006 ¶ 11).

Petitioner further contends a skilled artisan would have combined Rabbe, Yung, and Gruenwald “because both Rabbe and Yung were meant to be waterproof and easily removable for cleaning.” Pet. 66 (citing Ex. 1005, 2:20–33; Ex. 1006 ¶ 4). According to Petitioner, a skilled artisan “would have sought to use a lightweight, durable, and waterproof material (e.g., polyethylene disclosed by Yung) to fulfill an express purpose of Rabbe—easy removal of the tray for convenient cleaning.” *Id.* (citing Ex. 1003 ¶¶ 172–173; Ex. 1005, 2:20–33; Ex. 1006 ¶ 11).

After reviewing Petitioner’s contentions and the supporting evidence, we agree that Petitioner establishes motivation to combine notwithstanding Patent Owner’s contentions which we now address.

IPR2020-01139
Patent 8,382,186 B2

(2) Patent Owner's Contentions

Patent Owner first reiterates its contention discussed above in connection with the preamble of claim 1 that Yung would have led a skilled artisan to use compression molding. PO Resp. 54. For all the reasons discussed in connection with the preamble, this contention is unavailing.

Patent Owner next repeats its contention that Yung's foamed materials have different properties than Rabbe's semi-rigid rubber. PO Resp. 55. Patent Owner then presents a series of arguments why a skilled artisan would not use foamed polyethylene to thermoform Rabbe's tray. *Id.* at 56–58. Among these arguments are that foamed PE has different properties than regular PE and thermoset rubber (*id.* at 56), “you could not thermoform a floor tray from Yung's PE foam or EVA foam and still produce a waterproof floor tray” (*id.* at 57), a skilled artisan “would not look to foamed PE or EVA to emulate” the elasticity of Rabbe's rubber (*id.* at 58), and “foamed PE or EVA would create an unacceptable and easily abraded wear surface” (*id.*). None of these contentions are availing because, as discussed in connection with the preamble of claim 1, Yung's disclosure is not limited to foamed PE.

Patent Owner next contends that even if Yung disclosed forming a tray from a sheet of PE, “Petitioner has not shown that the mere disclosure of PE would have led a [skilled artisan] to thermoforming.” PO Resp. 58 (citing Ex. 2041 ¶ 152). In support of this contention, Patent Owner points to Dr. Koch's testimony that “there's 10,000 grades of polyethylene” but “under a thousand” are suitable for thermoforming and Yung does not teach the grade of polyethylene used for its mat. *Id.* at 58–59 (citing Ex. 2039, 81:9–10, 245:7–10, 247:13–17). According to Patent Owner, neither Petitioner nor Dr. Koch explains why a skilled artisan would turn to

IPR2020-01139
Patent 8,382,186 B2

thermoforming “given that approximately 90% of PE grades are admittedly unsuitable for thermoforming.” *Id.* at 59.

We disagree with this contention because Patent Owner presumes that a skilled artisan is an automaton, rather than a person of ordinary creativity. *See* Pet. Reply 10–11 (arguing the same); *see also KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). Even if 90% of polyethylene grades are not suitable for thermoforming, we credit Dr. Koch’s testimony that “[t]he thermoplastic materials in Yung’s floor mat are well suited for Rabbe’s floor tray and thermoforming.” Ex. 1041 ¶¶ 141–145. Specifically, we credit Dr. Koch’s testimony that “it is well known that polyethylene foam can be thermoformed into a floor mat” and that “[p]olyethylene foam is well known for its thermoformability.” *Id.* ¶ 142 (citing Ex. 1068, 1:23–27). We further credit Dr. Koch’s testimony that “a POSA would have sought to use Yung’s polyethylene material—foamed or unfoamed—for Rabbe’s floor tray to provide a lightweight, durable, and waterproof material.” *Id.* ¶ 128.

Patent Owner next contends Yung “describes a ‘one piece floor mat’ comprising ‘a three layer laminated mat body.’” PO Resp. 59 (citing Ex. 1006, claim 6). Patent Owner contends that because Yung ascribes certain benefits to its three layer mat body, Petitioner “fails to explain why a [skilled artisan] would have disregarded Yung’s teachings about the advantages of its three-layer design and looked only to Yung’s middle layer to form Rabbe’s tray, as it was required to do.” *Id.* at 60. Patent Owner further describes Petitioner’s proposal as “ripping the flexible, foamed PE middle layer out of Yung.” *Id.* at 62. Petitioner counters that it “did not rely on ‘the mere disclosure of PE’ in Yung or propose ‘ripping’ anything, but pointed

IPR2020-01139
Patent 8,382,186 B2

to teachings in the background art showing that thermoforming thermoplastic floor trays was well known. Pet. Reply 10 (citing Pet. 61–62).

We agree with Petitioner that Patent Owner takes a “far-too-narrow approach to obviousness.” Pet. Reply 9. In particular, we agree with Petitioner that this contention is based on an improper bodily incorporation of Yung and Rabbe that is not proposed in the Petition. *Id.* at 9–10.

Patent Owner next contends Yung teaches away from thermoforming a floor tray that closely conforms. PO Resp. 60–62. Patent Owner contends “[w]here a prior art reference teaches a different method of addressing a problem addressed by the claimed invention, it is teaching away from the claimed invention.” *Id.* at 60 (citing *Spectralytics, Inc. v. Cordis Corp.*, 649 F. 3d 1336, 1344 (Fed. Cir. 2011)). According to Patent Owner, Yung “teaches away from the claimed invention, because it teaches solving the problem of mats sliding by using foam particles to create friction.” *Id.* at 61 (citing Ex. 2041 ¶¶ 160–163). Petitioner counters that Patent Owner’s arguments misapply the law of teaching away. Pet. Reply 11. Petitioner argues that teaching away requires the reference to “criticize, discredit, or otherwise discourage investigation into” the claimed invention. *Id.* (citing *Meiresonne v. Google, Inc.*, 849 F. 3d 1379, 1382 (Fed. Cir. 2017)).

We agree with Petitioner that Patent Owner misstates the law. The Federal Circuit explains “[a] reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not ‘criticize, discredit, or otherwise discourage’ investigation into the claimed invention.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F. 3d 1314, 1327 (Fed. Cir. 2009) *citing In re Fulton*, 391 F. 3d 1195, 1201 (Fed. Cir. 2004). In this case, Patent Owner does not argue that Yung criticizes, discredits, or otherwise discourages investigation into the claimed

IPR2020-01139
Patent 8,382,186 B2

invention, *i.e.*, a floor tray that close conforms to the vehicle foot well walls. Consequently, Patent Owner’s teaching away contention is unavailing.

Patent Owner next contends that Gruenwald teaches away from thermoforming Rabbe’s tray. PO Resp. 62–66; *see also id.* at 67 (arguing “The lynchpin of Petitioner’s [motivation to combine] argument fails, however, because Yung would have led a [skilled artisan] to consider compression molding not thermoforming.”), 68 (“Yung does not disclose a rigid or semi-rigid sheet of PE, but rather a flexible PE foam or EVA foam.”) Patent Owner argues “Yung’s mat is compression molded, not thermoformed, and that thermoforming Rabbe’s tray could not be achieved using the foamed materials described in Yung.” *Id.* at 62. Patent Owner contends a skilled artisan “would have been led toward resources addressing compression molding, and would have no reason to look to Gruenwald’s treatise on teaching thermoforming.” *Id.* (citing Ex. 2041 ¶ 158; Ex. 2043 ¶ 131). To the extent this contention (or those argued at PO Resp. 67–69) is premised on Yung being limited to compression molding or foamed PE, it is unavailing because, as discussed in connection with the preamble of claim 1, Yung is not limited to compression molding nor is it limited to foamed PE.

Patent Owner next contends that “Rabbe’s tray walls can be folded down,” but “Gruenwald *teaches away* from sheet thermoforming a floor tray that is designed to fold.” PO Resp. 63 (citing Ex. 2041 ¶¶ 168–171) (emphasis added). In support of this argument, Dr. Osswald testifies that “[a] tray-shaped product made of a thick thermoplastic material sheet is not foldable.” Ex. 2041 ¶ 103. Patent Owner further explains “[t]hermoforming Rabbe’s trays would create points of failure at the sharp corners and at the approximately 90 degree edges going from the floor section to the wall sections.” PO Resp. 65 (citing Ex. 2041 ¶¶ 96, 100, 173).

IPR2020-01139
Patent 8,382,186 B2

Petitioner counters that although Rabbe's tray walls are designed to fold, they are designed to fold to "enable[] the protective tray to be released for removal from the vehicle interior." Pet. Reply 12 (citing Ex. 1005, 2:12–13). We agree with Petitioner and credit Dr. Koch's testimony that

The only folding that is needed is enough to remove the tray, and a POSA would recognize that bending the sides inward slightly is all that would be needed to remove it. That is, the purpose of the "fold" term in Rabbe is to allow the raised edges of Rabbe's floor tray to be flexed away from the sides of the vehicle footwell.

Ex. 1041 ¶ 151 (citing Ex. 1046, 88:15–16). We further agree with and credit Dr. Koch's testimony that "Gruenwald's heavy-gauge thermoforming techniques do not teach away from the flexibility needed for Rabbe's floor tray" (*id.* ¶ 153) and that "[a] POSA would have understood that thermoforming Rabbe's floor tray with the polyethylene (unfoamed or foamed) disclosed in Yung would have yielded raised edges that can flex away to promote handling of the floor mat" (*id.* ¶ 152).

For all the foregoing reasons, Patent Owner's contention that Gruenwald teaches away from the claimed invention is unavailing.

Patent Owner next contends a skilled artisan "would recognize that thermoforming Rabbe's trays *would not be cost-effective*" because the "trays have severely 'unequal heights,' which would result in significant material waste and deter a" skilled artisan from thermoforming. PO Resp. 67 (citing Ex. 2041 ¶ 99). Patent Owner relies on Dr. Osswald's testimony that thermoforming Rabbe's trays would result in "having to cut out a significant percentage of the sheet" and Gruenwald's other attempts to control variations in wall thickness "also drives up the cost." *Id.* at 68 (citing Ex. 2041 ¶ 99).

IPR2020-01139
Patent 8,382,186 B2

Petitioner counters there is “overwhelming evidence that thermoforming is more cost effective than other methods, particularly in the context of vehicle-specific floor trays requiring different molds for different cars.” Pet. Reply 22 (citing Ex. 1003 ¶¶ 31–33; Ex. 1007, 50; Ex. 1008, 28, Ex. 1012, 1:47–50; Ex. 1041 ¶ 133; Ex. 1041 ¶ 133; Ex. 1054, 1:61–65). Petitioner points to evidence that other processes such as compression molding “are far more costly due to much higher mold costs.” *Id.* (citing Ex. 1041 ¶ 133; Ex. 1042 ¶ 69; Ex. 1054, 2:14–17). According to Petitioner, a skilled artisan “would not have viewed the thermoforming process as costly when weighed against its many benefits, including substantial savings in mold costs.” *Id.* (citing Ex. 1041 ¶¶ 129–133; Ex. 1042 ¶¶ 69–72).

For the following reasons, we find Patent Owner’s contention to be unavailing. We credit Dr. Koch’s testimony that Gruenwald’s thermoforming techniques are “the most cost-effective.” Ex. 1041 ¶ 129. Dr. Koch supports his testimony that “The lower pressure and temperature levels employed in thermoforming lead to lower molding costs compared to other molding technologies” with corroborating evidence. *Id.* (citing Ex. 1008, 28–29; Ex. 2011, 554). With respect to the cost of trim material, Dr. Koch testifies, with support from corroborating evidence, that it “can be reused because it is a thermoplastic, even if it has to be extruded again to form a sheet. *Id.* ¶ 131 (citing Ex. 1007, 148–149; Ex. 1008, 55). Dr. Koch also testifies that “parts molded by compression molding typically cannot be reprocessed.” *Id.* at 132 (citing Ex. 2011, 637).

For all the foregoing reasons, we find that Petitioner has articulated reasons supported by a rational underpinning to combine the teachings of Rabbe, Yung, and Gruenwald resulting in a thermoformed vehicle tray meeting the limitations recited in claim 1.

IPR2020-01139
Patent 8,382,186 B2

p) Reasonable Expectation of Success

Petitioner contends a skilled artisan “making Rabbe’s floor tray using the materials (e.g., thermoplastics) specified in Yung and the thermoforming process (described in Gruenwald) would have had a reasonable expectation of success.” Pet. 67 (citing Ex. 1003 ¶ 175). Petitioner further contends a skilled artisan “would have known that three-dimensional data modeling of the vehicle foot well was readily generated by technology existing before October 2004. *Id.* (citing Ex. 1003 ¶ 175; Ex. 1035 (“Hemmelgarn”)). Petitioner contends that many coordinate measuring machines (CMM) “were suitable to conduct a step-by-step touch and record process that created a 3D computer model of parts with complex shapes/curvatures, scanning the floor of an existing vehicle and downloading the coordinates to a 3D milling machine” which “was used to create a male or female thermoform mold.” *Id.* (citing Ex. 1003 ¶ 175; Ex. 1035, 5:35–52). According to Petitioner, a skilled artisan “manufacturing Rabbe’s floor tray using thermoforming would have followed this well-known process, and thus had a reasonable expectation of success at achieving the resulting floor tray.” *Id.* at 67–68 (citing Ex. 1003 ¶ 175).

Patent Owner counters there is no reasonable expectation of success. PO Resp. 48. According to Patent Owner, “the techniques for thermoforming a vehicle floor tray from a single sheet of thermoplastic material that closely conforms to the vehicle foot well as claimed were not within the knowledge or skill set of a [skilled artisan] prior to October 2004.” *Id.* at 50 (citing Ex. 2042 ¶ 92; Ex. 2043 ¶ 156). A primary basis for this contention is Patent Owner obtained other patents “covering the processes for manufacturing and designing vehicle floor trays.” *Id.* at 49 (citing Ex. 1034; Ex. 1004; Ex. 2044; Ex. 2045).

IPR2020-01139
Patent 8,382,186 B2

Patent Owner next contends Petitioner’s reasonable expectation of success contentions are unsupported. PO Resp. 50. Patent Owner contends Petitioner’s reliance on Hemmelgarn for disclosure of CMM’s is insufficient because it “says *nothing* concerning how its CMM machine could be used to generate three-dimensional data from the surface of a vehicle foot well, let alone how that three-dimensional data could be used to create a mold from a closely conforming floor tray could then be thermoformed.” *Id.* at 51 (citing Ex. 2042 ¶¶ 61–63). Patent Owner also contends Dr. Koch’s reliance on Hemmelgarn does not support his testimony “regarding how a mold would be created from the gathered three-dimensional data.” *Id.* at 52 (citing Ex. 1003 ¶ 175). Mr. Granger testifies that “Dr. Koch omits many important steps that [PO] had to take in 2004 to turn points of data gathered by a CMM machine into a machine mold” and delineates fourteen such steps. Ex. 2042 ¶ 62.

Petitioner counters Patent Owner’s assertions that tools were not available in 2004 to scan a foot well or use the data to create a mold are wrong. Pet. Reply 23. Petitioner directs us to the ’186 patent, which Petitioner contends discloses commercially available tools, namely, “the FaroArm and related software” that a skilled artisan “would have known how to use these (or similar) tools to achieve an accurate mold that produced a closely conforming floor tray.” *Id.* (citing Ex. 1001, 16:35–37; Ex. 1044, ¶¶ 31–63; Ex. 1047, 165:16–19; Ex. 1048, 95:14–21, 97:5–11; Ex. 1060). Petitioner contends skilled artisans knew the “FaroArm [was] used extensively in the automotive industry, . . . available in the 1990s,” and “small enough to fit within a vehicle to measure a footwell and obtain accurate data.” *Id.* at 23–24 (citing Ex. 1044 ¶¶ 36–45, 67–69).

IPR2020-01139
Patent 8,382,186 B2

Petitioner further contends that computer software for creating accurate molds from CMM data was well known. Pet. Reply 24 (citing Ex. 1041 ¶¶ 159–160; Ex. 1044 ¶¶ 46–56). Petitioner points to Hemmelgarn’s disclosure of software to perform three-dimensional geometric analysis as well as “[o]ther software available by 2004” to use data to form a mold. *Id.* (citing Ex. 1035, 5:47–52; Ex. 1044 ¶¶ 46–56). Petitioner further contends the steps listed by Mr. Granger “were merely routine steps for using CAD to develop a mold” and “there was no reason for Dr. Koch to belabor the point.” *Id.* (citing Ex. 1041 ¶ 160; Ex. 1044 ¶¶ 35, 46–77).

Patent Owner, in turn, contends Petitioner “dramatically shifts position” from the Petition by submitting Mr. Perreault’s declaration to contend a skilled artisan “would have: used the FaroArm to measure a vehicle footwell; used computer software to create a 3D representation of the desired product; and created a mold to manufacture the product.” Sur-reply 19 (citing Pet. Reply 23–25).¹⁵ Patent Owner further contends Petitioner’s reasonable expectation of success argument is based on improper hindsight because Petitioner presents no evidence “that anyone ever scanned a vehicle footwell to make a tray/mat before” Patent Owner did so. *Id.* at 19–20. Based on our review of the Petitioner’s contentions and evidence, we find that Petitioner establishes a skilled artisan would have had a reasonable expectation of success in combining the teachings of Rabbe, Yung, and Gruenwald notwithstanding Patent Owner’s contentions which we now address.

¹⁵ Patent Owner separately moves to strike this part of Petitioner’s Reply. Paper 42, 4. We address the motion to strike below.

IPR2020-01139
Patent 8,382,186 B2

First, we start with the proposition that “Obviousness does not require absolute predictability of success . . . all that is required is a reasonable expectation of success.” *In re O’Farrell*, 853 F.2d 894, 903–904 (Fed. Cir. 1988) (citations omitted). Patent Owner’s contentions that no one ever scanned a vehicle foot well to make a floor tray prior to Patent Owner doing so and that Patent Owner patented the process are unavailing because these contentions essentially convert the reasonable expectation of success requirement to a requirement of absolute predictability.

Second, there is no dispute the ’186 patent discloses that the inventors used a commercially available product, the “FARO® Arm” or “FaroArm,” to scan and obtain data on the surface of the vehicle foot well. Ex. 1001, 16:33–37; *see also* Tr. 55–56 (“There was a portable scanning device available that we used.”). The fact that Dr. Koch refers to a portion of Hemmelgarn which Patent Owner contends shows Hemmelgarn’s CMM apparatus couldn’t go inside the body of a car (PO Resp. 51) is of little import. Mr. Perreault testifies that he worked at FARO Technologies from 1997 to 2002 and “developed expertise in using the renowned FaroArm®.” Ex. 1044 ¶¶ 12–13. Mr. Perreault also testifies “the FaroArm® was extensively used by automobile manufacturers . . . before October 2004.” *Id.* ¶ 42 (citing Ex. 1060, 4); *see also id.* ¶ 61 (“Using portable CMMs to scan a surface of a vehicle, such as a foot well, had become a routine step in the automobile industry for prototyping and manufacturing tools and parts” (citing Ex. 1078)). Patent Owner’s witness, Mr. Sherman, who testifies he is a skilled artisan (Ex. 2043 ¶ 46), confirms the commercial availability of the FaroArm prior to 2004. Ex. 1047, 164:16–165:19. Mr. Perreault also identifies another portable CMM available prior to October 2004, the

IPR2020-01139
Patent 8,382,186 B2

ROMER Arm®, that was used in manufacturing to obtain “three-dimensional measurements in-situ.” Ex. 1044 ¶¶ 43–44. Given his personal experience with portable CMM’s prior to 2004, we credit Mr. Perreault’s testimony that a skilled artisan in October 2004 “would have been aware of portable CMMs . . . and would have understood how to use these CMMs to obtain accurate data of a vehicle foot well, including for use in making a mold for thermoforming a floor tray.” *Id.* ¶ 45.

Third, Mr. Perreault testifies that by the late 1990s and early 2000s, “several software vendors developed scan data processing programs . . . to convert spatial data outputted by the portable CMM into a CAD model suitable for developing the code to drive a CNC milling machine operation.” Ex. 1044 ¶ 49 (citing Ex. 1091, 8); *see also id.* ¶¶ 50–56 (describing how a skilled artisan could use the computer programs available in 2004). Mr. Perreault further testifies that “it was well within the level of ordinary skill before October 2004 for a [skilled artisan] to transform scanned three-dimensional data to a CAD working model that was inputted into a controller of a CNC milling machine to produce the mold of the thermoforming assembly” and that these were “routine steps using the commercially available CAD programs to convert the scanned data of a vehicle foot well to a mold surface for manufacturing the floor tray.” *Id.* ¶ 62. We credit Mr. Perreault’s testimony based on his personal experience.

We do not agree with Patent Owner that Petitioner changed its theory of reasonable expectation of success from the Petition to the Reply. Our Trial Practice Guide provides “Petitioner may not submit new evidence or argument in reply that it could have presented earlier” but “may submit rebuttal evidence.” CTPG, 73. In the Patent Owner response, Patent Owner argued that before October 2004, there were “no known techniques for

IPR2020-01139
Patent 8,382,186 B2

obtaining accurate three-dimensional position data for a footwell and using that data to create a mold that could be used to thermoform a tray that closely conformed to the foot well” and the techniques for doing so were not within the knowledge of a skilled artisan. PO Resp. 49–50. Mr. Perreault’s declaration directly addresses and rebuts Patent Owner’s statements and establishes that a skilled artisan would have been aware of CMM’s and the corresponding software. Such rebuttal evidence is the proper subject of a reply. *Belden v. Berk-Tek LLC*, 805 F.3d 1064, 1079 (Fed. Cir. 2015). Petitioner’s reply may also introduce evidence to document the knowledge of one of ordinary skill in the art as Mr. Perreault does here. *Anacor Pharms., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018). Finally, Patent Owner deposed Mr. Perreault (Ex. 2185) and does not dispute the substance of his testimony. *See generally* Sur-reply.

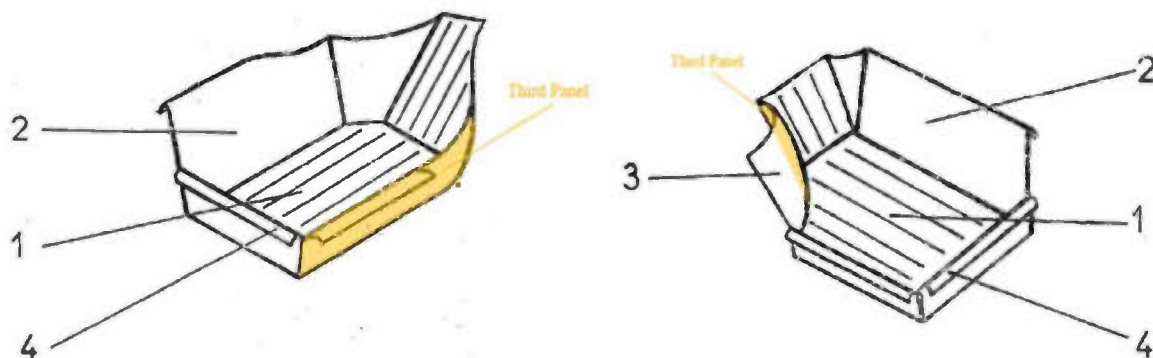
For all the foregoing reasons, we find Petitioner establishes that a skilled artisan would have had a reasonable expectation of success in combining the teachings of Rabbe, Yung, and Gruenwald.

5. Dependent Claims 2–7

Claim 2 depends from claim 1 and recites “a third panel integrally formed with the central panel of the floor tray and joined to at least one of the first and second panels by curved transitions, the third panel upwardly extending from a third lateral side of the central panel of the floor tray.” Ex. 1001, 20:25–29.

Petitioner provides the following annotated version of Rabbe’s Figures 3 and 4 in support of its contention that the combination of Rabbe, Yung, and Gruenwald disclose the requirements of Claim 2:

IPR2020-01139
 Patent 8,382,186 B2



EX1005, FIGs. 3-4 (annotated).

Petitioner's annotated versions of Rabbe's Figures 3 and 4, which are perspective views of Rabbe's protective tray, highlight the claimed third panel in orange extending upward from the central panel toward a side of the vehicle foot well in Figure 3 and toward a wheel well in Figure 4. Pet. 69.

Relying in part on its contentions for claim elements 1c and 1e, Petitioner contends a skilled artisan would have understood that Rabbe's "semi-rigid rubber or other material" describes an "integral construction." Pet. 69–70 (citing Ex. 1005, Abstract, 2:10–11). Petitioner further contends a skilled artisan would have been motivated "to include a third side wall integrally formed with the central panel of the floor tray . . . to fully protect the vehicle foot well, which typically have at least three side walls." *Id.* at 70 (citing Ex. 1003 ¶ 180; Ex. 1017). Petitioner further relies on substantially the same contentions as for claim 1 regarding Gruenwald and Yung regarding thinning during the thermoforming process, sharp corners, and curved transitions. *Id.* at 70–71. Petitioner further relies on its contentions concerning reasonable expectation of success discussed above. *Id.* at 71–72.

Patent Owner does not separately argue for the patentability of claim 2. *See generally* PO Resp.

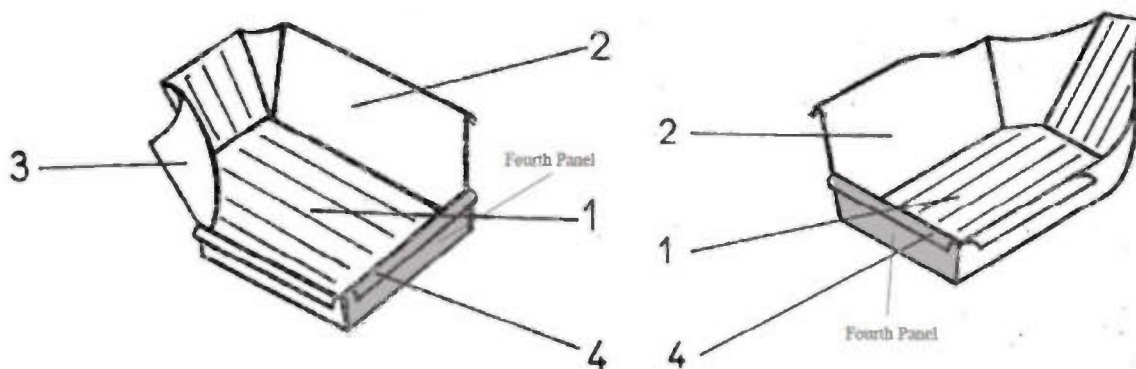
IPR2020-01139
 Patent 8,382,186 B2

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 2.

Claim 3 depends from claim 2 and recites “a fourth panel integrally formed with the central panel of the floor tray and joined to at least one of the second and third panels by curved transitions, the fourth panel upwardly extending from a fourth lateral side of the central panel of the floor tray.”

Ex. 1001, 20:30–34.

Petitioner submits the following annotated version of Rabbe’s Figures 3 and 4 in support of its contention that Rabbe, Yung, and Gruenwald disclose the requirements of claim 3:



EX1005, FIGs. 3-4.

Petitioner’s annotated versions of Rabbe’s Figures 3 and 4, which are perspective views of Rabbe’s protective tray, highlight the claimed fourth panel in grey extending upward from the central panel near to the feet of a driver or passenger. Pet. 73.

Relying in part on its contentions for claim elements 1c and 1e and claim 2, Petitioner contends a skilled artisan would have understood that Rabbe’s “semi-rigid rubber or other material” describes an “integral construction.” Pet. 73 (citing Ex. 1005, Abstract, 2:10–11). Petitioner

IPR2020-01139
Patent 8,382,186 B2

further contends that a skilled artisan would have been motivated “to include a third panel integrally formed with the central panel of the floor tray . . . to fully protect the vehicle foot well, which typically have at least three side walls.” *Id.* at 70 (citing Ex. 1003 ¶ 187). Petitioner further relies on substantially the same contentions as for claim 1 Yung regarding thinning during the thermoforming process, sharp corners, and curved transitions. *Id.* at 73–74. Petitioner further relies on its contentions concerning reasonable expectation of success discussed above. *Id.* at 74.

Patent Owner does not separately argue for the patentability of claim 3. *See generally* PO Resp.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 3.

Claim 4 depends from claim 1 and recites “wherein at least one of the first and second panels has a top margin, the top margin being at least five inches higher than the central panel of the floor tray at its greatest vertical separation therefrom.” Ex. 1001, 20:35–58.

Petitioner contends the ’186 patent ascribes no criticality to the five inch height recited in claim 4. Pet. 74. Nonetheless, Petitioner contends Rabbe discloses or at least suggests this limitation by its disclosure “that the panels ‘*are raised by several centimeters*’ over the full periphery thereof and therefore make it possible to keep dirt inside the tray.” *Id.* at 75 (citing Ex. 1005, 1:14–16). Petitioner relies on Dr. Koch’s testimony that a skilled artisan “would have considered Rabbe’s disclosure of the side walls raised by ‘several centimeters’ to include the recited ‘at least five inches’ . . . particularly in the context of vehicle floor trays” or it would have been obvious based on a skilled artisan’s “personal knowledge of vehicle models

IPR2020-01139
Patent 8,382,186 B2

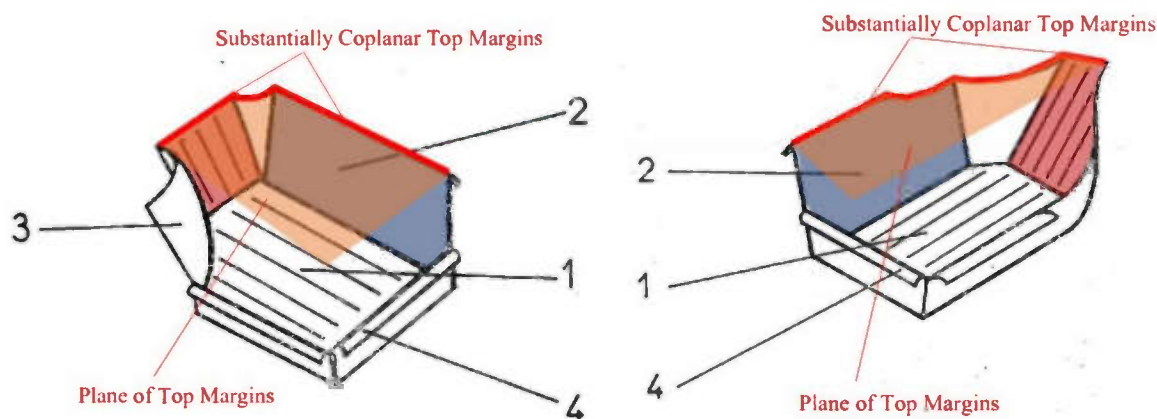
with footwells having sidewalls that were at least five inches higher than the floor.” *Id.* (citing Ex. 1003 ¶ 192; Ex. 1007).

Patent Owner does not separately argue for the patentability of claim 4. *See generally* PO Resp.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 4.

Claim 5 depends from claim 1 and recites “wherein the first and second panels have top margins which are substantially coplanar with each other.” Ex. 1001, 20:39–41.

Petitioner submits the following annotated version of Rabbe’s Figures 3 and 4 in support of its contention that Rabbe, Yung, and Gruenwald disclose the requirements of claim 5:



EX1005, FIGs. 3-4 (annotated).

Petitioner’s annotated versions of Rabbe’s Figures 3 and 4, which are perspective views of Rabbe’s protective tray illustrate the top margins in red of the first and second panels and superimposes a semi-transparent orange plane over the top margins to establish what Petitioner contends is the coplanar nature of the top margins. Pet. 76.

IPR2020-01139
Patent 8,382,186 B2

Petitioner contends that whether the top margins are co-planar is dependent on “whether the first and second sidewalls of the vehicle foot well have respective top margins that are coplanar. Pet. 77 (citing Ex. 1003 ¶ 195). Petitioner further contends that this requirement of claim 5 is “disclosed by Rabbe” and “is simply an obvious variant that is the product of ordinary creativity that meets the express purposes of the prior art—completely covering the sidewalls, protect them from soiling, and sealing liquid into the vehicle floor tray.” *Id.* (citing Ex. 1003 ¶ 195).

Patent Owner does not separately argue for the patentability of claim 5. *See generally* PO Resp.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 5.

Claim 6 depends from claim 1 and recites “wherein one[] of the baffles include longitudinal portions for impeding the side-to-side lateral movement of fluid.” Ex. 1001, 20:42–44.

Petitioner contends “Rabbe’s floor tray has a ‘corrugated bottom’ with the corrugations extending in the longitudinal direction of the floor tray.” Pet. 77 (citing Ex. 1005, 2:7–9, 3:17–19, Figs. 3, 4). Petitioner further contends “[t]hese baffles, impede side-to-side lateral movement of the fluid.” *Id.* (citing Ex. 1003 ¶¶ 196–197). Petitioner further contends “Yung has raised umbos (B) disposed in the longitudinal direction that impede side-to-side lateral movement of fluid.” *Id.* at 78 (citing Ex. 1003 ¶ 197; Ex. 1006 ¶¶ 1, 4, claim 6, Fig. 1). Petitioner further contends that a skilled artisan “would have been motivated to include Yung’s configuration of baffles to impede the flow of water within the reservoir” to “reduce[] the likelihood that fluid in the reservoir sloshing up and over the sidewalls onto

IPR2020-01139
Patent 8,382,186 B2

the vehicle interior during acceleration, deceleration, or turning.” *Id.* (citing Ex. 1003 ¶ 198; Ex. 1006 ¶ 13).

Patent Owner does not separately argue for the patentability of claim 6. *See generally* PO Resp.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 6.

Claim 7 depends from claim 1 and recites “wherein one[s] of the baffles include transverse portions for impeding forward or rearward lateral movement of fluid.” Ex. 1001, 20:45–47.

Petitioner contends that claim 7 “is also disclosed by Yung’s umbos (A), with transverse portions shown, for example, at the left and rights sides of the reservoir, where baffles turn from a transverse orientation to one at approximately forty-five degrees.” Pet. 79 (citing Ex. 1003 ¶¶ 199–200; Ex. 1006, Fig. 1). According to Petitioner, “[b]oth the transverse portion of the umbos and the portions at forty-five degrees impede the forward or rearward lateral movement of fluid.” *Id.* (citing Ex. 1003 ¶ 200).

Patent Owner does not separately argue for the patentability of claim 7. *See generally* PO Resp.

Based on the evidence cited by Petitioner, the combined teachings of Rabbe, Yung, and Gruenwald disclose the requirements of claim 7.

6. Secondary Considerations of Non-obviousness

Patent Owner contends that Patent Owner’s WeatherTech thermoformed vehicle floor trays “are covered by claim 1 of the ’186 patent.” PO Resp. 70 (citing Ex. 2042 ¶¶ 30–42). Patent Owner provides claim charts “illustrating how WeatherTech’s vehicle trays “embody and are coextensive with the invention of claim 1.” *Id.* (citing Ex. 2042 ¶ 38; Exs.

IPR2020-01139
Patent 8,382,186 B2

2090–2095)¹⁶; *see also id.* at 70–74 (providing annotated photographs of sample vehicle trays). Based on this evidence, Patent Owner contends it is entitled to a presumption of nexus.

Patent Owner contends its WeatherTech floor trays satisfy a long-felt need (PO Resp. 75–77), have been a commercial success (*id.* at 77–78), have been praised in the industry (*id.* at 78–79), competitors have licensed the '186 patent (*id.* at 79–80), and others have tried but failed (Sur-reply 41).

a) Presumption of Nexus

Petitioner contends Patent Owner does not attempt to show its products are coextensive with the claimed invention and is not entitled to a presumption of nexus. Pet. Reply 25–26. Petitioner contends that Mr. Granger's testimony that a 1/16 inch tolerance for all four side panels of WeatherTech's vehicle trays fails to establish a presumption of nexus because these features as well as Patent Owner's proprietary blend of materials are unclaimed. *Id.* at 25 (citing Ex. 1048, 55:2–56:11, 57:3–13; Ex. 2126 ¶¶ 84–85). Petitioner also contends that “close conformance of floor trays to footwells was well documented in the prior art, destroying any possible nexus.” *Id.* at 26 (citing Ex. 1025, 1:49–52, 3:29–51; Ex. 1041 ¶ 167; Ex. 1053, 2:17–20, 2:36–3:3, 3:60–65, 4:34–46, 6:1–33; Ex. 1054, Abstract, 1:16–21; Ex. 1055, 4:43–47). For the following reasons, we disagree with Petitioner.

In order for us to accord substantial weight to secondary considerations, Patent Owner must establish “a ‘nexus’ to the claims, *i.e.*,

¹⁶ Exhibit 2134 corrects Exhibit 2091 (Ex. 2127 ¶¶ 8–9), Exhibit 2136 corrects Exhibit 2093 (Ex. 2127 ¶¶ 10–11), and Exhibit 2135 corrects Exhibit 2092 (Ex. 2127 ¶¶ 12–13).

IPR2020-01139
Patent 8,382,186 B2

there must be ‘a legally and factually sufficient connection’ between the evidence and the patented invention.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). Patent Owner “is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product ‘is the invention disclosed and claimed.’” *Id.* Patent Owner must also show that the product is coextensive with the claimed features. *Id.* “[T]he degree of correspondence between a product and the patent claim falls along a spectrum. At one end of the spectrum lies perfect or near perfect correspondence. At the other end lies no or very little correspondence.” *Id.* at 1374. However, a “patent claim is not coextensive with a product that includes a ‘critical’ unclaimed feature that is claimed by a different patent and that materially impacts the product’s functionality.” *Id.* at 1375.

Patent Owner’s witness, Mr. Granger, testifies “[t]he claims of the ’186 Patent . . . require at least close conformance of the side panels of the claimed vehicle floor tray to respective side walls of the vehicle foot well for which the vehicle floor tray is custom designed.” Ex. 2042 ¶ 30. Mr. Granger further testifies that the floor panel in WeatherTech’s vehicle trays are within 1/8 inch of the vehicle floor and the side walls should be within 1/16 inch of the vehicle foot well side walls. *Id.* ¶¶ 70–71. As discussed above, we determine that the plain and ordinary meaning of “close conformance” in the claims of the ’186 patent requires a close spatial relationship between the walls of the vehicle tray and the vehicle foot well walls. Based on our review of Mr. Granger’s testimony as well Patent Owner’s claim charts (Exs. 2090, 2094, 2096, 2134, 2135, 2136), we find Patent Owner establishes that WeatherTech’s vehicle trays embody the

IPR2020-01139
Patent 8,382,186 B2

claimed invention and are coextensive with the claims. *See SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1319 (Fed. Cir. 2015). Petitioner’s argument that the particular numerical tolerances from Mr. Granger’s testimony are unclaimed features does not rebut Patent Owner’s showing because the particular numerical tolerances, in fact, establish the close spatial relationship required by the plain and ordinary meaning of the claims.

Petitioner’s contention, based on the cross-examination testimony of Mr. Granger (Pet. Reply 25), that the success of WeatherTech’s vehicle trays results from the unclaimed proprietary blend of materials is likewise not persuasive. Mr. Granger expresses *uncertainty* as to whether these proprietary materials lead to the commercial success. *See* Ex. 1048, 56:20–57:2 (“Would you say that the proprietary blend of polyethylene used by [Patent Owner] for its floor liners is one of the things that sets [Patent Owner’s] floor liners apart from the competition? A. Yeah, it could be.”). We find that Mr. Granger’s testimony does not undercut Patent Owner’s showing.

Petitioner’s contention that nexus is destroyed because close conformance was well documented in the prior art is also not persuasive. Petitioner cites to Dr. Koch’s testimony and several other prior art references in support of this contention. *See* Pet. Reply (citing Ex. 1025, 1:49–52, 3:29–51; Ex. 1041 ¶ 167; Ex. 1053, 2:17–20, 2:36–3:3, 3:60–65, 4:34–46, 6:1–33; Ex. 1054, Abstract, 1:16–21; Ex. 1055, 4:43–47). We reviewed Dr. Koch’s testimony which relies on Rabbe “and other background art” (same art cited in Petitioner’s Reply) that according to Dr. Koch “confirms that these features were well-known.” Ex. 1041 ¶ 167. Neither Dr. Koch nor Petitioner attempt to show how this “other background art” discloses the close conformance limitations of the ’186 patent. The fact that we find

IPR2020-01139
Patent 8,382,186 B2

Rabbe discloses the close conformance limitation does not establish that close conformance was well-known as Petitioner contends. The Federal Circuit instructs that “it is the claimed combination as a whole that serves as a nexus for objective evidence; proof of nexus is not limited to only when objective evidence is tied to the supposedly ‘new’ feature(s).” *WBIP LLC v. Kohler Co.*, 829 F.3d 1317, 1330 (Fed. Cir. 2016); see also *id.* at 1331 (“We further reject [the] . . . claim that objective evidence must be tied exclusively to claim elements that are not disclosed in a particular prior art reference in order for that evidence to carry substantial weight.”).

Based on the claim charts presented by Patent Owner (Exs. 2090–2095) and Mr. Granger’s testimony and after considering Petitioner’s contentions, we find Patent Owner establishes that the WeatherTech vehicle trays are co-extensive with the claimed invention and entitled to a presumption of nexus.

b) Commercial Success

Patent Owner contends the commercial success of the WeatherTech vehicle trays “since their introduction in 2004 is incredible.” PO Resp. 77 (citing Ex. 2042 ¶¶ 73–85). We agree.

Patent Owner submits evidence that between 2004 and 2020, “sales of WeatherTech trays have risen steadily year-over-year, culminating in gross revenue in the hundreds of millions of dollars in 2020 and total gross revenue in the billions of dollars since 2004.” *Id.* (citing Ex. 2042 ¶ 73). Patent Owner further contends WeatherTech’s vehicle trays in 2020 “were purchased for a double-digit percentage of all new U.S. vehicles.” *Id.* at 77–78 (citing Ex. 2042 ¶¶ 73–76). Patent Owner contends the commercial success “is primarily due to one reason—the way WeatherTech®’s trays fit

IPR2020-01139
Patent 8,382,186 B2

in the vehicle for which they are custom manufactured.” *Id.* at 78 (citing Ex. 2042 ¶¶ 81–85).

Petitioner contends Patent Owner “focuses only on new U.S. vehicles, which is an improper view of the market” and fails to compare its market share “to the market share of other vehicle floor mats.” Pet. Reply 26. These contentions are not persuasive because Mr. Granger testifies to Patent Owner’s double digit market penetration and notes the relatively small volume of foreign sales at least in 2020. Ex. 2042 ¶¶ 75–76. We are not persuaded by Petitioner’s contentions because it provides no evidence to rebut Mr. Granger’s testimony on the appropriate definition of the market and Patent Owner’s substantial market penetration, which we credit.

Petitioner next contends Patent Owner fails to address its marketing activities. Pet. Reply 26. Petitioner argues Patent Owner advertises extensively including Super Bowl ads. *Id.* (citing Ex. 1048, 57:17–58:16; Ex. 1061). Petitioner also contends “Mr. Granger admitted that [Patent Owner]’s alleged success was at least in part because of marketing.” *Id.* (citing Ex. 1048, 57:11–16). We interpret these contentions as an attempt to rebut the presumption of nexus. *See WBIP*, 829 F.3d at 1329 (explaining that a challenger may rebut presumption by presenting evidence on “extraneous factors . . . such as marketing.”). In support, Petitioner presents an undated advertisement for the WeatherTech Laguna Seca raceway (Ex. 1061) and testimony from Mr. Granger confirming that Patent Owner advertises its products during the Super Bowl, at race tracks, and on television and the Internet (Ex. 1048, 57:17–58:16).

We do not interpret Mr. Granger’s testimony that “a combination of a lot of different attributes that have led to the success of the McNeill automotive form” (Ex. 1048, 57:11–13) as an admission that the commercial

IPR2020-01139
Patent 8,382,186 B2

success of the WeatherTech vehicle trays is attributable to marketing. Rather, Mr. Granger states the unremarkable proposition that many different things contribute to Patent Owner's success. Petitioner produces no evidence of the timing of any of these advertising and marketing activities during the time period of 2004 to 2020 nor evidence of how any of the activities affected the commercial success of the WeatherTech's vehicle trays over these sixteen years.

Patent Owner has shown that the evidence of commercial success is tied to its vehicle floor trays which are coextensive with the claimed invention. Petitioner has not produced evidence to rebut the presumption of nexus. *WBIP*, 829 F.3d at 1330 (“a patent challenger cannot successfully rebut the presumption with argument alone—it must present evidence.”). Consequently, we find the evidence of commercial success is due to the close conforming vehicle floor tray which is coextensive with the claims and is strongly persuasive of non-obviousness.

c) Long-Felt Need

Patent Owner submits “prior vehicle floor mats were deficient because they could be pushed around by the occupants' feet, resulting in the mats ‘not being centered on the area protected, or pushed up so as to occlude the gas brake, or clutch pedals, or bunched up or folded over’” leading to “limited customer acceptance due to their loose fit.” PO Resp. 75 (citing Ex. 1001, 1:21–2:4). Patent Owner contends “[t]hese were long-felt problems in the industry” and relies on testimony from Mr. Sherman that “[w]hile some prior art floor trays were advertised as having a ‘perfect’ or ‘exact’ fit . . . it was universally recognized in the . . . industry that this was mere puffery.” Ex. 2043 ¶ 161 (emphasis omitted). Patent Owner also points to other evidence that “the author of one product review noted that

IPR2020-01139
Patent 8,382,186 B2

[w]hen I was coming up, aftermarket floor mats didn't fit—any car” but “[a]s soon as they were on the floor you hated them and yourself for buying them . . . *Those days ended when MacNeil Automotive . . . began making WeatherTech floor mats right here in the U.S. of A.*” PO Resp. 77 (quoting Ex. 2056, 1) (alteration in original).

Petitioner contends that Patent Owner fails to establish long-felt need because “Mr. Sherman admitted that other manufacturers addressed this problem.” Pet. Reply 27 (citing Ex. 2043 ¶ 161). Patent Owner, in turn, contends that Petitioner's citation to Mr. Sherman's testimony is misleading and points to his further testimony that “although POSIT As had introduced techniques [] to address floor liner movement in the early 2000s, there remained a need for a custom-fit floor tray that presented a solid, steady surface to the user's feet.” Sur-reply 41 (citing Ex. 2043 ¶¶ 133, 162).

We agree with Patent Owner that Petitioner's citation to Mr. Sherman's testimony is misleading. Petitioner omits Mr. Sherman's testimony that although skilled artisans used “techniques (e.g., fasteners, retentive rims, treated surfaces) . . . there remained a need for a custom-fit floor tray that presented a solid, steady surface to the user's feet.” Ex. 2043 ¶ 162.

After reviewing Patent Owner's evidence of long-felt need and after considering Petitioner's contentions, we find the evidence of long-felt need is due to the close conforming vehicle floor tray which is coextensive with the claims and is persuasive of non-obviousness.

d) Industry Praise

Patent Owner contends “[t]here is extensive industry praise for the close conformance of WeatherTech's trays to the surface of the vehicle foot well for which they are custom manufactured.” PO Resp. 78–79 (citing Ex.

IPR2020-01139
Patent 8,382,186 B2

2043 ¶¶ 170–171). Among the evidence of industry praise cited by Patent Owner is the WeatherTech trays “fit the contour of the floor as precisely as you can imagine” (Ex. 2054, 1), “[d]igital laser measurements . . . offer a consistently perfect fit” (Ex. 2055, 1–2), “making ‘mats that fit’ as a ‘revolutionary concept’” (Ex. 2056, 1–2), and “[t]he remarkable fit . . . makes them the absolute top choice among car and truck owners” (Ex. 2057, 4).

Petitioner contends that “[r]eviews mentioning a ‘perfect fit’ simply repeat what was disclosed in the prior art.” Pet. Reply 27. We find this contention not persuasive because Patent Owner’s evidence shows more than perfect fit but points to the perfect fit being a revolutionary concept and the absolute top choice among car and truck owners.

After reviewing Patent Owner’s evidence of industry praise and after considering Petitioner’s contentions, we find the evidence of industry praise is due to the close conforming vehicle floor tray which is coextensive with the claims and is persuasive of non-obviousness.

e) Competitor Licenses

Patent Owner cites to two settlement agreements with patent licensees and submits that “[t]his licensing activity favors a finding of nonobviousness.” PO Resp. 79–80 (citing Ex. 2050, 2051).

Petitioner argues that “[l]icenses intended to resolve litigation are not persuasive evidence of nonobviousness without affirmative evidence that the license has a nexus to the merits of the claimed invention.” Pet. Reply 27 (citing *In re Cree, Inc.*, 818 F.3d 694, 703 (Fed. Circ. 2016)).

Although Patent Owner submitted two settlement agreements, we agree with Petitioner that Patent Owner fails to provide affirmative evidence that the settlement agreements, which include patent licenses, have a nexus

IPR2020-01139
Patent 8,382,186 B2

to the merits of the claimed invention. *See* Pet. Reply 28. The settlement agreements license multiple patents and broadly includes any patent that issues from U.S. Application No. 10/976,441 which includes the '186 patent. Ex. 2050 §§ 1.3, 1.8; Ex. 2051 §§ 2, 6. No information is provided about critical details of the licenses—such as the relative contributions of each of the patents, let alone the claims, in the portfolio to the value of the licenses—such that we could discern whether the licensee took the license “out of recognition and acceptance of the subject matter claimed” in the '186 patent, or something else. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); *see also Unified Patents, LLC v. Syncloud Technologies, LLC*, 2021 WL 841367, * 17.

Accordingly, we do not find Patent Owner’s license agreement evidence persuasive in establishing nonobviousness.

f) Failure of Others

In the Sur-reply, Patent Owner argues for the first time, based on the deposition testimony of Mr. Sherman, others “failed to use a CMM to scan a footwell and produce a custom made floor tray.” Sur-reply 41 (citing Ex. 166:13–167:16). This argument is not in the Patent Owner Response and Patent Owner does not explain why it could not have timely discovered this evidence from its own declarant. Therefore, the argument is waived and we do not consider it. Paper 18, 8; *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016) (holding that an argument not presented in a patent owner’s response is waived); *Dell Inc. v. Accelaron, LLC*, 884 F.3d 1364, 1369 (Fed. Cir. 2018) (holding that the Board was not obligated to consider an “untimely argument”).

IPR2020-01139
Patent 8,382,186 B2

g) Summary of Secondary Considerations

For the all foregoing reasons, we find that there is a nexus between the invention recited in the claims¹⁷ and Patent Owner's evidence of commercial success, long-felt need, and industry praise. We find that Patent Owner's evidence of secondary considerations is compelling evidence of non-obviousness.

7. Conclusion

After weighing all the evidence submitted by the parties in light of the *Graham* factors, we determine Petitioner has not demonstrated by a preponderance of the evidence that any of the challenged claims would have been obvious over Rabbe, Yung, and Gruenwald. As discussed above, Patent Owner's evidence of secondary considerations is compelling and indicative of non-obviousness. We, therefore, accord substantial weight to it in our analysis of the *Graham* factors.

III. MOTION TO STRIKE

A. Introduction

With our authorization (Paper 69), Patent Owner filed a Motion to Strike (Paper 72, "Motion" or "Mot."), in which Patent Owner seeks to strike portions of Petitioner's Reply Brief and certain expert declarations cited therein. *See* Mot. 1. Patent Owner asserts that Petitioner submitted fifty-five new exhibits with its Reply, and "43 of Petitioner's 55 new exhibits (78%) could have been filed with the Petition, but were not." *Id.* Patent Owner explains that the Reply "includes improper new arguments, rationales, and theories that should be stricken because they were not

¹⁷ Claims 2–7 depend from claim 1 and incorporate the closely conforming limitations.

IPR2020-01139
Patent 8,382,186 B2

presented or developed in the Petition.” *Id.* at 2. Patent Owner asks that we “strike the Reply in whole or in part and any evidence in support of arguments that are either new or incorporated by reference.” *Id.* at 15.

Petitioner opposes the Motion. Paper 74 (“Opposition” or “Opp.”). In its Opposition, Petitioner explains that “a petitioner has latitude to expand on arguments in the petition, respond to patent owner’s arguments, and show the state of the art, as [Petitioner] did here. And a petitioner may also submit evidence to support these arguments and confirm obviousness, as [Petitioner] did here.” *Id.* at 5.

Patent Owner also filed a reply to the Opposition. Paper 75. In its reply to the Opposition, Patent Owner disputes Petitioner’s characterization that the arguments and evidence submitted with Petitioner’s Reply are permissible. *See id.* at 1 (“[Petitioner’s] attempts to explain away its new arguments are unavailing.”).

We deny Patent Owner’s Motion.

B. Analysis

Even if we agree with Patent Owner that Petitioner’s Reply contains new evidence and argument, “striking the entirety or a portion of a party’s brief is an exceptional remedy that the Board expects will be granted rarely.” Patent Trial and Appeal Board Consolidated Trial Practice Guide 80 (Nov. 2019). Our Trial Practice Guide also provides that “the Board is capable of identifying new issues or belatedly presented evidence when weighing the evidence,” without granting the exceptional remedy of striking Petitioner’s Reply. *See id.*

We agree with Petitioner that its Reply Brief includes permissible evidence and argument in response to Patent Owner’s Response and to further expound upon theories raised in the Petition. *See Opp.* 3–4; *see also,*

IPR2020-01139
Patent 8,382,186 B2

e.g., supra Reasonable Expectation of Success (agreeing with Petitioner that it's Reply theory based on Mr. Perreault's testimony was an allowable reply to issues raised in the Patent Owner Response).

Indeed, our reviewing court makes clear that Petitioner "may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner." *Anacor Pharms., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018); *see also* Opp. 3 (arguing the same). Striking Petitioner's Reply Brief in light of this permissible argument and evidence would likely invite unfavorable criticism from our reviewing court. *See, e.g., Ericsson Inc. v. Intellectual Ventures I LLC*, 901 F.3d 1374, 1381 (Fed. Cir. 2018) (vacating and remanding the Board's decision for failing to consider portions of petitioner's reply brief because the reply properly "expand[ed] the same argument made in its Petition" instead of providing a new theory); *see also* Opp. 2–3 (arguing the same).

We further note that Patent Owner filed its Sur-reply and addressed Petitioner's Reply in its subsequent paper. *See, e.g.,* Sur-reply 15 ("The Petition did not rely upon all the '[o]ther portions' of Rabbe that [Petitioner] belatedly asserts satisfy the 'substantially conforming' limitations" (*comparing* Pet. Reply 4–5, *with* Pet. 41–42, 46–47)). As such, Patent Owner had adequate opportunity to respond to Petitioner's Reply and any evidence cited therein. *See Telefonaktiebolaget LM Ericsson v. TCL Corporation*, 941 F.3d 1341, 1345 (Fed. Cir. 2019) ("[T]he Board did not abuse its discretion in admitting the Michel Declaration, for when the challenged evidence is reasonably viewed as material, and the opponent has adequate opportunity to respond and to produce contrary evidence, the interest of justice weighs on the side of admitting the evidence.").

IPR2020-01139
 Patent 8,382,186 B2

For the foregoing reasons, we deny Patent Owner's Motion to Strike in its entirety.

IV. CONCLUSION

Weighing the evidence of the disclosure of the references, the competing testimony, the reasoning to combine the references, and the evidence of secondary considerations, we determine that Petitioner has not shown that claims 1–7 of the '186 patent are unpatentable.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–7	103	Rabbe, Yung, Gruenwald		1–7
Overall Outcome				1–7

IPR2020-01139
Patent 8,382,186 B2

V. ORDER

Accordingly, it is:

ORDERED that claims 1–7 of the '186 patent have not been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Strike (Paper 72) is denied; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.¹⁸

¹⁸ 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).

IPR2020-01139
Patent 8,382,186 B2

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Paper 82
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

YITALLC,
Petitioner,

v.

MACNEIL IP LLC,
Patent Owner.

IPR2020-01142
Patent 8,833,834 B2

Before MITCHELL G. WEATHERLY, MICHAEL L. WOODS, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

WOODS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)
ORDER
Denying Patent Owner's Motion to Strike
37 C.F.R. § 42.64

IPR2020-01142
Patent 8,833,834 B2

I. INTRODUCTION

Petitioner, Yita LLC, filed a Petition (Paper 3, “Pet.”) requesting *inter partes* review of claims 1–15 (“the challenged claims”) of U.S. Patent No. 8,833,834 B2 (Ex. 1001, “the ’834 patent”). Pet. 1. We issued a decision to institute an *inter partes* review of these claims. Paper 17 (“Institution Decision” or “Inst. Dec.”).

After institution, MacNeil IP LLC (“Patent Owner”) filed a Patent Owner Response (Paper 28 (“PO Resp.” or “Response”)), to which Petitioner replied (Paper 60 (“Pet. Reply” or “Reply”)). Patent Owner also filed a Sur-Reply to Petitioner’s Reply. Paper 70 (“PO Sur-Reply” or “Sur-Reply”).

Oral argument, or hearing, was held on October 12, 2021, and the transcript of the hearing has been entered as Paper 78 (“Transcript” or “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2019). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown that claims 13–15 of the ’834 patent are unpatentable. Petitioner has not shown that claims 1–12 of the ’834 patent are unpatentable.

IPR2020-01142
Patent 8,833,834 B2

A. Related Proceedings

The parties identify the following matters as related:

- *MacNeil Auto. Prods. Ltd. et al. v. Yita LLC et al.*, No. 2:20-cv-00278 (WDWA);
- *MacNeil Auto. Prods. Ltd. et al. v. Jinrong (SH) Auto. Acc. Dev. Co., Ltd. et al.*, No. 2:20-cv-00856 (WDWA);
- IPR2020-01138, institution of which we denied and which sought review of related U.S. Patent No. 8,382,186 B2 (the “’186 patent”);
- IPR2020-01139, which seeks review of the ’186 patent and which was instituted on January 13, 2021; and
- IPR2020-01140, institution of which we denied and which sought review of the ’834 patent.

Pet. 82; Paper 6, 2.

B. Real Parties-In-Interest

The Petition lists Yita LLC, Jinrong (SH) Automotive Development Co., Ltd., ShenTian (SH) Industrial Development Co., Ltd, and Hong Kong Yita International Trade Company Limited as the real parties-in-interest.

Pet. 82. Patent Owner identifies itself, MacNeil Automotive Products Limited, and WeatherTech Direct, LLC, as the real parties-in-interest. Paper 6, 2.

C. The ’834 Patent (Ex. 1001)

The ’834 patent is titled “Molded Vehicle Floor Tray and System.” Ex. 1001, code (54). The ’834 patent describes a vehicle floor tray that is

IPR2020-01142
 Patent 8,833,834 B2

molded from a sheet of polymeric material. *Id.* at Abstr. The '834 patent explains a need for a removable floor tray that fits precisely within a vehicle's foot well so that it's more likely to remain in position during vehicle operation, thereby minimizing the chance that it occludes the gas, brake, or clutch pedals. *See id.* at 1:39–44, 2:12–16. To illustrate an embodiment of the floor tray, we reproduce Figure 1, below:

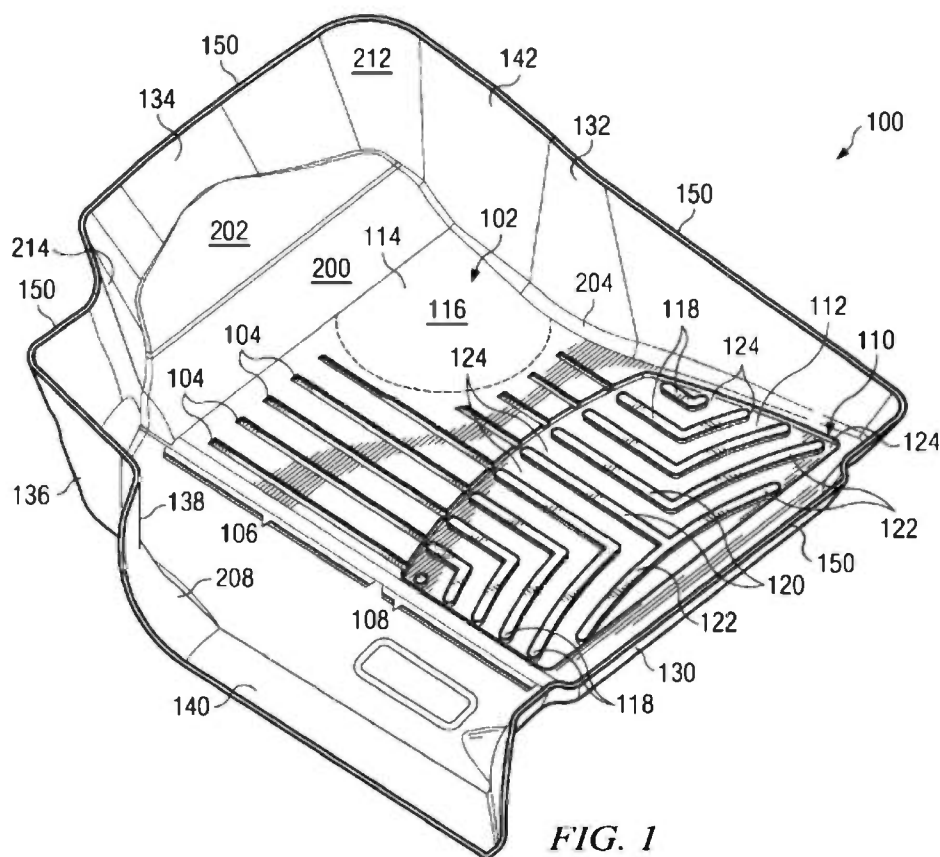


Figure 1 depicts an embodiment of the floor tray described in the '834 patent. *Id.* at 5:49–50. In particular, this figure illustrates vehicle floor tray (or cover) 100 that is designed to protect a vehicle's floor and lower sides of the foot well. *See id.* at 6:34–35. Floor tray 100 includes floor (or central panel) 102 with channels 104 disposed in forward region 106 of the panel. *Id.* at 6:37–41.

IPR2020-01142
Patent 8,833,834 B2

D. Illustrative Claims

Petitioner challenges every claim of the '834 patent, claims 1–15. Pet. 1. Of these claims, claims 1, 5, 9, and 13 are independent. Ex. 1001, 20:4–24:19. We reproduce independent claims 1 and 13, below, reformatted from the version provided in the '834 patent to include bracketed alphanumeric nomenclature that corresponds with Petitioner's nomenclature.

1. *[Preamble]* A system including a vehicle and a floor tray for consumer installation into a predetermined foot well of the vehicle, the system comprising:

[Element 1(a)] a vehicle foot well having a floor, a substantially longitudinally disposed first foot well wall upstanding from the floor, a substantially transversely disposed second foot well wall upstanding from the floor and joined to the first foot well wall, a substantially longitudinally disposed third foot well wall upstanding from the floor and joined to the second foot well wall; and

[Element 1(b)] a vehicle floor tray molded from a sheet of polymeric material of substantially uniform thickness,

[Element 1(c)] a central panel of the tray substantially conforming to the floor of the vehicle foot well,

[Element 1(d)] a substantially longitudinally disposed first tray wall joined to the central panel by a curved transition and standing up from the central panel to substantially conform to the first foot well wall,

[Element 1(e)] a substantially transversely disposed second tray wall joined to the central panel and to the first tray wall by respective curved transitions and standing up from the central panel, the second tray wall substantially conforming to the second foot well wall,

[Element 1(f)] a substantially longitudinally disposed third tray wall joined to the central panel and to the second tray wall by respective curved transitions and standing up from the central panel,

IPR2020-01142
Patent 8,833,834 B2

[Element 1(g)] the central panel and first, second and third tray walls each having an outer surface facing the vehicle foot well and an inner surface opposed to the outer surface, a thickness of the central panel and of the, first, second and third tray walls measured between the outer surface and the inner surface thereof being substantially uniform throughout the tray;

[Element 1(h)] at least 90 percent of that one-third of the outer surfaces of the first, second and third tray walls which are closest to the respective top margins of the first, second or third tray walls being within one-eighth of an inch of the respective foot well walls.

13. *[Preamble]* A vehicle floor tray for installation by a consumer in a vehicle foot well, the vehicle floor tray formed from a sheet of polymeric material of substantially uniform thickness and comprising:

[Element 13(a)] a substantially horizontal central panel;

[Element 13(b)] a first tray wall joined to the central panel by a curved transition, the first tray wall standing up from the central panel and being substantially longitudinally disposed;

[Element 13(c)] a second tray wall joined to the central panel and to the first tray wall by respective curved transitions, the second tray wall standing up from the central panel and being substantially transversely disposed;

[Element 13(d)] a third tray wall joined to the central panel and to the second tray wall by respective curved transitions, the third tray wall standing up from the central panel and being substantially longitudinally disposed;

[Element 13(e)] the central panel having a general portion with an upward facing general surface and a reservoir portion with an upwardly facing general surface, the general surface of the reservoir portion disposed vertically below the general surface of the general portion; and

[Element 13(f)] a plurality of elongate, spaced-apart, hollow baffles formed within the reservoir portion to stand up from the general surface of the reservoir portion,

IPR2020-01142
 Patent 8,833,834 B2

[Element 13(g)] each of the general portion of the central panel, the reservoir portion of the central panel, the baffles and the first, second and third tray walls having an outer surface adapted to face a respective surface of a vehicle foot well and an inner surface opposed to the outer surface, a thickness measured between the respective inner and outer surfaces of the first tray wall, second tray wall, third tray wall, general portion of the central panel, reservoir portion of the central panel and the baffles being substantially uniform throughout the tray.

Ex. 1001, 20:4–40, 22:56–24:3; Pet. 31–45, 57–64.

E. References Relied Upon

Petitioner's challenges rely on the following references (Pet. 23):

Name	Reference	Ex. No.
Rabbe	Certified English-language translation of French Patent Publication No. 2,547,252, published December 14, 1984	1005
Yung	US Patent Publication No. 2002/0045029 A1, published April 18, 2002	1006
Gruenwald	G. Gruenwald, <i>Thermoforming: A Plastics Processing Guide</i> , Technomic Publishing Company, Inc. (2 nd Ed. 1998)	1007
Sturtevant	US Patent No. 2,657,948, issued Nov. 3, 1953	1011

IPR2020-01142

Patent 8,833,834 B2

F. Alleged Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following grounds (Pet. 23):

Ground	Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1	1, 4, 5, 8, 9, 12–15	103	Rabbe, Yung, Gruenwald
2	2, 3, 6, 7, 10, 11	103	Rabbe, Yung, Gruenwald, Sturtevant

Petitioner supports its challenge with declarations from, among others, Dr. Paul E. Koch, Ph.D. (Exs. 1003, 1041), Mr. Mark Strachan (Ex. 1042), and Mr. Dan Perreault (Ex. 1044). *See* Pet. vi; *see also* Pet. Reply v. Patent Owner submits the competing testimony of, among others, Dr. Tim Osswald, Ph.D. (Exs. 2041, 2186), Mr. Ryan Granger (Exs. 2042, 2127), and Mr. Ray Sherman (Exs. 2043, 2187). *See, e.g.*, PO Resp. ix; *see also id.* at vii n.1 (withdrawing the testimony of Dr. James Thorne, Ph.D.); *see also* PO Sur-Reply ix, xii.

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the ’834 patent issued asserts priority to a parent application filed before this date, and this priority is not at issue in this proceeding, we apply pre-AIA version of § 103. *See* Ex. 1001, code (60).

IPR2020-01142

Patent 8,833,834 B2

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966).

Factors pertinent to a determination of the level of ordinary skill in the art include: (1) 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 workers active in the field. *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. Ltd, Inc. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

In determining a level of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown” (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)))

IPR2020-01142
Patent 8,833,834 B2

Petitioner contends that a person having ordinary skill in the relevant art (“POSITA” or “POSA”)

would have had a bachelor’s degree in engineering: plastics, mechanical, or a closely related field, or equivalent formal training, education, or practical experience in a field relating to plastic product design, material science, or manufacturing. This person would also have a minimum of three to five years of experience in plastics engineering, manufacturing, plastic product design, or a related industry. This description is an approximation and a higher level of training or practical experience might make up for less education, and vice-versa.

Pet. 20 (citing Ex. 1003 ¶¶ 26–28).

For the purposes of institution, we adopted Petitioner’s proposed level of ordinary skill in the art. Inst. Dec. 8–10. At that time, we disagreed with Patent Owner’s argument that Petitioner’s expert, Dr. Koch, is not a POSITA, because he lacks “substantial industrial knowledge and experience in thermoforming.” *Id.* at 9 (quoting Paper 11 (citing Ex. 2004 ¶¶ 3–17) (Thorne declaration)). Patent Owner asks that we “reconsider [our] position” because “Petitioner’s theories of obviousness rely exclusively on . . . thermoform[ing] Rabbe’s floor tray.” PO Resp. 7–8. Patent Owner’s expert, Dr. Osswald, testifies that a POSITA “would be particularly familiar with and have experience with plastic product design and manufacturing using thermoforming techniques. Ex. 2041 ¶ 46 (emphasis added); *see also* PO Resp. 7 (citing Ex. 2041 ¶¶ 43–48). Dr. Osswald further testifies that

In my opinion, in light of the technology described and claimed in the ’834 Patent (e.g., vehicle floor trays molded/formed from a sheet of polymeric material) and the manner in which Petitioner maps the disclosure in the alleged prior art references to the claims of the ’834 Patent (a mapping that relies on the alleged disclosure of a thermoformed vehicle floor tray in the proposed combinations of references), *a POSITA would at least have three*

IPR2020-01142
Patent 8,833,834 B2

*years of industry experience with thermoforming techniques. . . .
In my opinion, knowledge and experience in the thermoforming
industry is critical to understanding the '834 Patent's
manufacturing processes.*

Ex. 2041 ¶ 47 (emphasis added).

We decline to adopt Patent Owner's proposed level of skill.

Even if Petitioner's unpatentability arguments involve the manufacture of Rabbe's floor tray by thermoforming (*see, e.g.*, Pet. 38), we do not find this reason enough to impose a requirement that a POSITA must have "at least have three years of industry experience with thermoforming techniques." Ex. 2041 ¶ 47. The claims of the '834 patent simply recite "vehicle floor trays" or a "system including a vehicle and a floor tray," and do not require that the floor trays be manufactured by thermoforming. *See* Ex. 1001, 20:4–24:19. Under Patent Owner's strict definition of a POSITA, a skilled artisan with a Ph.D. in thermoforming would not qualify as a POSITA, unless that artisan also had at least three years of "industry experience in thermoforming techniques." *See* Ex. 2041 ¶ 47. Upon consideration of the factors enumerated in *Environmental Designs*, we decline to adopt such a rigid definition. *See Environmental Designs*, 713 F.2d at 696–97.

In particular, the sophistication of the technology, as reflected in the prior art, does not persuade us that at least three years of industry experience in thermoforming techniques—as opposed to graduate-level research in vehicle floor tray design—is *necessary* to qualify a person as a POSITA, as Patent Owner's expert testifies. *See* Ex. 2041 ¶ 47. Rather, we find Petitioner's definition to more accurately reflect the level of ordinary skill in the art, as it does not require "at least three years of industry experience with

IPR2020-01142
Patent 8,833,834 B2

thermoforming techniques.” *Compare id., with* Pet. 20. Petitioner’s definition is flexible as it provides that “a higher level of training or practical experience might make up for less education, and vice-versa.” *See* Pet. 20.

For this reason, we adopt Petitioner’s proposed level of ordinary skill in the art. *Id.*

B. Claim Construction

In an *inter partes* review proceeding for a petition filed on or after November 13, 2018, a patent claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b). This rule adopts the same claim construction standard used by Article III federal courts (*see id.*), which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) and its progeny. Under the *Phillips* standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips*, 415 F.3d at 1312–13. If either party believes that a claim term requires an express construction, that party may propose a construction on its own. *See* Patent Trial and Appeal Board Consolidated Trial Practice Guide 44 (Nov. 2019) (“Guide”). We have considered the Petition, Patent Owner’s Response, Petitioner’s Reply, Patent Owner’s Sur-Reply, and evidence cited therein, and do not discern a need to construe explicitly any claim language to resolve any disputed issue. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“we need only construe terms ‘that are in

IPR2020-01142
Patent 8,833,834 B2

controversy, and only to the extent necessary to resolve the controversy”) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

C. Principles of Law

“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). This burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Petitioner’s challenges are based on obviousness. Pet. 23. A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham*, 383 U.S. at 17–18.

D. Ground 1: Rabbe, Yung, Gruenwald

Petitioner asserts that claims 1, 4, 5, 8, 9, and 12–15 are unpatentable as obvious over Rabbe, Yung, and Gruenwald. Pet. 23.

IPR2020-01142
Patent 8,833,834 B2

For the reasons discussed below, Petitioner has shown that claims 13–15, but not claims 1, 4, 5, 8, 9, and 12, are unpatentable as obvious over Rabbe, Yung, and Gruenwald.

1. *Rabbe (Ex. 1005)*

Rabbe is an English-language translation of French Patent Document FR 2547252. Ex. 1005, 1. Rabbe is titled “Protective Tray for Vehicle Interiors” and discloses “floor mats with raised edges, forming a tray and providing effective protection of the floors and side walls of vehicle interiors at the feet of the driver, of the passengers, as well as the trunks, against water, mud, snow and other soil.” *Id.* at codes (54), (57). We reproduce Figure 3 of Rabbe, below:

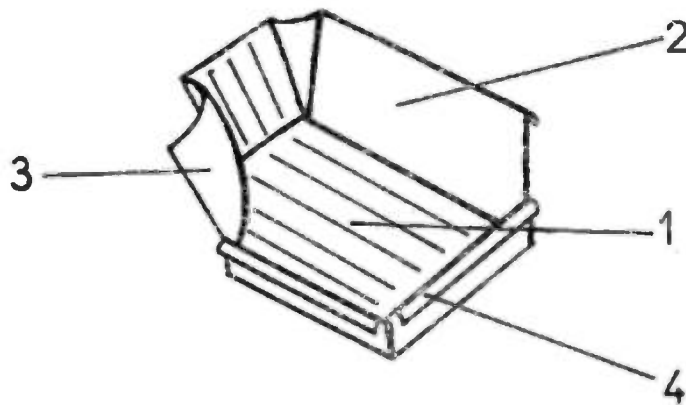


Figure 3 depicts Rabbe’s protective tray with corrugated bottom, raised edges 2 “of unequal heights conforming to the interior contour of the vehicle, particularly the location of” wheels 3, and with flanges 4. *See id.* at 2:7–15.

IPR2020-01142

Patent 8,833,834 B2

2. *Yung (Ex. 1006)*

Yung is a U.S. Patent Application titled “Mat Used in Cars.”

Ex. 1006, code (54). Yung describes a floor mat with a middle plastic plate or layer that is “flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene—Vinyl Acetate (EVA) foam.” *Id.* ¶ 11. We reproduce Figure 3 of Yung, below:

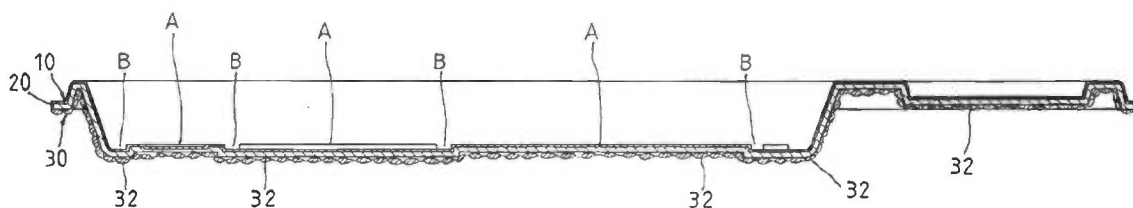


Figure 3 depicts a cross-sectional view of Yung’s car mat. *See id.* ¶¶ 6, 8.

3. *Gruenwald (Ex. 1007)*²

Gruenwald is a book titled “Thermoforming: A Plastics Processing Guide.” Ex. 1007, 1. Gruenwald discloses, in relevant part, reducing wall thickness in male and female molds (*id.* at 37–43), drape forming (*id.* at 162–163), billow drape forming (*id.* at 165), snap-back forming (*id.* at 166), reverse draw with plug-assist forming (*id.* at 167), and design considerations (*id.* at 183–186).

4. *Independent Claim 13*

In challenging claim 13, Petitioner submits that “[t]he analysis for 13[preamble] through 13[d] and 13[g] does not differ from 1[preamble] and 1[b]-1[f] and 1[g], so the analysis from claim 1 applies to corresponding elements of Claim 13.” Pet. 58 (citing in part Ex. 1003 ¶ 175).

² We cite to Gruenwald’s native page numbers.

IPR2020-01142
Patent 8,833,834 B2

We address the limitations of claim 13 with the understanding that Petitioner relies on the same analysis presented in challenging claim 1.

a) Preamble— A vehicle floor tray for installation by a consumer in a vehicle foot well, the vehicle floor tray formed from a sheet of polymeric material of substantially uniform thickness³

In addressing the preamble of claim 13, vis-à-vis claim 1, Petitioner submits that “to the extent the preamble of claim [13] is limiting, the Rabbe-Yung-Gruenwald combination discloses the preamble.” *See* Pet. 32; *see also id.* at 58 (“13[preamble] more broadly recites ‘the vehicle floor tray formed from a sheet of polymeric material,’ rather than 1[b]’s ‘vehicle floor tray molded from a sheet of polymeric material.’”). In particular, to address the recited “floor tray formed from a sheet of polymeric material of substantially uniform thickness,” Petitioner relies on a combination of Rabbe, Yung, and Gruenwald and submits that a skilled artisan would have used “a material of a substantially uniform thickness in thermoforming” Rabbe’s floor tray. *See id.* at 34.

Petitioner cites to Rabbe’s disclosure that Rabbe’s “protective tray [is] produced from semi-rigid rubber or another material having the same properties.” *Id.* at 33 (citing Ex. 1005, 1:16–18) (alteration in original).

Petitioner relies on Yung’s disclosure of “an improved mat used in cars” that consists of “a middle Plastic . . . plate or layer” made from “a flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene-

³ Patent Owner argues the preamble of claim 13 is limiting. PO Resp. 8–9. Petitioner addresses the preamble “to the extent the preamble” is limiting. *See* Pet. 32 (addressing preamble of claim 1), 57–58 (addressing claim 13). For purposes of our analysis, we treat the preamble as limiting.

IPR2020-01142
Patent 8,833,834 B2

Vinyl Acetate (EVA) foam.” *Id.* at 33–34 (citing Ex. 1006 ¶¶ 10–11) (emphasis omitted).

As to Gruenwald, Petitioner relies on Gruenwald’s teaching of thermoplastic sheets used in thermoforming. *Id.* at 34. Dr. Koch testifies that polyethylene, or PE, “was a well-known thermoplastic . . . [and that a POSITA] would have understood that this thermoplastic was available in flat sheets of substantially uniform thickness.” Ex. 1003 ¶ 129. Dr. Koch further testifies that a POSITA “would have had a reason to use a material of substantially uniform thickness in thermoforming.” *Id.*

In combining the references, Petitioner reasons that a skilled artisan would have been motivated “to manufacture Rabbe’s floor tray using a thermoforming process because of the suitability of thermoplastics and the thermoforming process to fulfill Rabbe’s purpose.” Pet. 47–48. As to the claimed “uniform thickness,” Petitioner reasons that a skilled artisan “would have sought to control thinning during thermoforming, thus directing a POSA to achieve a thermoformed part of substantially uniform thickness.” *Id.* at 49 (citing Ex. 1003 ¶ 155; Ex. 1007, 67).

After reviewing Petitioner’s contentions and the supporting evidence, we agree that Petitioner establishes motivation to combine notwithstanding Patent Owner’s numerous arguments, which we now address.

IPR2020-01142

Patent 8,833,834 B2

(1) Yung’s intrinsic record reveals that Yung’s flexible, universal floor mat was compression molded, not thermoformed as Petitioner alleged, using foamed materials. A POSITA would immediately recognize that Yung’s mat is not thermoformable.

Patent Owner argues that “the proposed Rabbe-Yung-Gruenwald combination does not teach a thermoformed vehicle floor tray as Petitioner alleges.” PO Resp. 37. Patent Owner submits that “Rabbe’s tray is made of semi[-]rigid rubber, which is not a thermoplastic and not thermoformable.” *Id.* at 38. Patent Owner argues that Petitioner *misrepresented* that “Yung teaches thermoformed floor mats” and that Yung instead “teaches compression molding a three-layer laminate that includes a layer of PE foam or ethylene-vinyl acetate (EVA) foam.” *Id.* (emphasis omitted). Patent Owner explains that “Yung describes a compression molded, one-size-fits-all mat used in cars—not a custom floor tray” (*id.* at 55) and that “a POSITA looking to Yung would have been led to compression molding, not thermoforming” and that “Yung’s disclosure of waterproof foams would have precluded thermoforming” (*id.* at 56). *See also id.* at 64 (“Yung’s mat is compression molded, not thermoformed, and that thermoforming Rabbe’s tray could not be achieved using the foamed materials described in Yung.”).

In support of Patent Owner’s argument that Yung’s floor tray is compression molded, Patent Owner cites to a foreign patent application (Ex. 2023, “the ’432 application”) in Yung’s priority chain, and submits that “[t]he ’432 application discloses no less than four different times that Yung’s floor mat was compression molded.” *Id.* at 39 (citing Ex. 2023, 3, 7, 10) (emphases omitted). Patent Owner explains that Yung discloses “PE and EVA foams,” which “are different materials with different physical

IPR2020-01142
Patent 8,833,834 B2

properties from what Rabbe discloses and a POSITA would recognize that Yung’s stated choice of material precludes thermoforming.” *Id.* at 40 (emphasis omitted). Dr. Osswald testifies that a “POSITA would understand that a net fabric with yarns and threads can only shear, but not stretch” and that a POSITA would recognize that Yung’s three-layer mat cannot be thermoformed. *Id.* at 40–41 (citing in part Ex. 2041 ¶ 134). Patent Owner further argues that “[i]t would not be possible to thermoform a foamed layer without damaging the fine foam structure of the material and leaving it inoperable for its intended purpose” because “[t]hermoforming such a material would destroy the fragile closed-cell structure upon application of heat and vacuum during the process, rendering the floor mat no longer impermeable to water.” *Id.* at 41–42 (citing Ex. 2041 ¶¶ 132, 136, 143, 148, 154); *see also id.* at 57 (“Foamed PE and EVA have different properties than PE, and very different properties from thermoset rubber”) (emphasis omitted).

In response to Patent Owner’s argument, Petitioner submits that Rabbe discloses materials useful in thermoforming and that “a POSA would have considered Rabbe’s teachings to include thermoplastic elastomers.” Pet. Reply 14. Petitioner further contends that “Yung is not limited to polyethylene foam” and that Yung “broadly provides polyethylene or EVA foam as examples of its middle plastic layer without limiting the polyethylene to a polyethylene foam.” *Id.* at 17 (emphasis omitted).

We agree with Petitioner.

As to Patent Owner’s assertion that “Rabbe’s tray is made of semi[-]rigid rubber, which is not a thermoplastic and not thermoformable” (PO Resp. 38), Patent Owner’s interpretation of Rabbe is too narrow. Rabbe

IPR2020-01142
Patent 8,833,834 B2

discloses that its tray is “produced from semi-rigid rubber *or another material having the same properties.*” Ex. 1005, Abstr. (emphasis added). Rabbe’s material properties include a material that is flexible and waterproof. *See id.* (describing a tray that is flexible and protects the vehicle interior from water). Based on this disclosure, we find that Rabbe teaches, more generally, flexible trays that are waterproof. Having weighed and considered the competing testimony of the parties’ experts, we credit Dr. Koch’s testimony on this point, namely, paragraphs 80–83 of Exhibit 1041. Specifically, we agree with Dr. Koch’s testimony that Rabbe’s teaching of other materials “having the same properties” would have led a POSITA to consider using thermoplastics. Ex. 1041 ¶ 80.

As to Patent Owner’s assertion that Yung is limited to teaching compression molding of polyethylene foam (*see* PO Resp. 38–42), we disagree. Again, Patent Owner’s interpretation of the prior art, in this case, Yung, is too narrow. Having weighed the competing testimony of the parties’ experts, we credit Dr. Koch’s testimony to the same. Ex. 1041 ¶¶ 92–95. Specifically, we credit Dr. Koch’s testimony that a “POSA would have viewed Yung’s disclosure as encompassing a variety of polyethylene materials and readily selected an appropriate polyethylene for a floor tray.” *Id.* ¶ 95.

As to the ’432 application, *even if* Yung taught only EVA and polyethylene *foams*—which we do not find—the record supports a finding that polyethylene foams may be thermoformed. *See* Pet. Reply 18 (finding the same in citing Exs. 1007, 1008). We find persuasive and credit Dr. Koch’s testimony that “if Yung’s foam materials can be compression molded without destroying its cell structure, as alleged by Dr. Osswald, then

IPR2020-01142

Patent 8,833,834 B2

thermoplastic foams must also be able to sustain the lower temperature and pressure conditions of thermoforming without losing its waterproof nature.” Ex. 1041 ¶ 97. We further find persuasive and credit Mr. Strachan’s testimony that thermoforming foam materials was commonplace before the time of the invention. *See* Ex. 1042 ¶¶ 82–90; *see also id.* ¶ 82 (testifying that thermoforming polyethylene foam was “commonplace before 2004”); *see also id.* ¶ 84 (“Long before 2004, thermoforming foams was well within the level of ordinary skill in the art.”); *see also id.* ¶ 85 (“thermoforming foam materials without destroying the closed-cell structure was commonplace before 2004”). In particular, we credit Mr. Strachan’s testimony that one could have thermoformed Yung’s three-layer floor mat, as “Yung’s polyester fabric (10) and net lining (30) would naturally stretch over the middle layer of polyethylene or EVA foam during the thermoforming process.” *Id.* ¶ 83 (citing Ex. 1066, 4:43–46). Mr. Strachan’s testimony is further supported by other substantial evidence of record. *See, e.g.,* Ex. 1058, 5 (“In view of PE foam’s excellent thermoformability, it is highly suitable for trunk mats of cars with intricately shaped trunks (Fig. 5) . . . Ford Europe has decided to adopt these mats on standard models beginning in 1976.”); *see also* Ex. 1042 ¶ 84 (testifying to and referencing the same); *see also id.* ¶¶ 82–90 (testifying and citing evidentiary support that thermoforming fabric and foam materials was well known and well within the level of ordinary skill in the art at the time of the invention).

IPR2020-01142
Patent 8,833,834 B2

(2) Even if Rabbe, Yung, and Gruenwald were combined, there is no reasonable expectation of success to achieve the claimed invention

Patent Owner argues that even if Rabbe, Yung, and Gruenwald were combined, there is no reasonable expectation of success to achieve the claimed invention. PO Resp. 49. Patent Owner asserts that “PO invented, and patented, techniques making it possible to thermoform a vehicle floor tray that *closely conformed as claimed.*” *Id.* at 51 (emphasis added). Patent Owner argues that Petitioner’s contention that a POSITA would have had a reasonable expectation of success is unsupported. *Id.*

We disagree with Patent Owner’s argument, as it focuses on the conformance limitations of claims 1–12, rather than the features recited in claim 13 (or of dependent claims 14 and 15). In particular, Patent Owner argues:

- a. “[T]he techniques for forming a vehicle floor tray from a single sheet of thermoplastic material that conforms to the vehicle foot well as claimed (e.g., ‘*within one-eighth of an inch*’ in specified portions) were not within the knowledge or skill set of a POSITA prior to October 2004.” PO Resp. 51 (citing Ex. 2042 ¶ 92; Ex. 2043 ¶ 156) (emphasis added);
- b. “PO’s contributions to the field included not only the vehicle floor tray claimed in the ’834 Patent but also the associated manufacturing techniques *enabling creation of a closely conforming floor tray.*” PO Resp. 52 (emphasis added);
- c. Arguing that even if coordinate measurement machines (“CMMs”) existed, “it is not evidence that it was within the knowledge or skill of a POSITA to use such a machine to gather three-dimensional

IPR2020-01142
Patent 8,833,834 B2

- data from a vehicle foot well, use that data to model the surface and manipulate the surface model to create a mold, and thermoform a vehicle floor tray having the specific features *recited in Claim 1.*” PO Resp. 53–54 (emphasis added);
- d. Arguing that Petitioner’s evidence does not show how “three-dimensional data could be used to create a mold which a *closely conforming floor tray* could then be thermoformed.” PO Resp. 53 (emphasis added);
- e. Asserting that Petitioner’s expert, “Dr. Koch[,] admitted that he ‘can’t recall a floor mat’ that was constructed prior to October 2004 using a CMM machine that meets the *conformance limitations of the ’834 Patent.*” PO Resp. 54 (citing Ex. 2039, 317:14–320:11) (emphasis added); and
- f. “PO lays out a multistep, patented process that enables making a mold capable of producing a tray achieving the *claimed one-eighth inch tolerance.*” PO Resp. 55 (emphasis added).

Unlike claims 1–12, claim 13 does not recite language that requires any of its “walls” to closely conform or otherwise be within one-eighth of an inch from a foot well wall. *See* Ex. 1001, 20:4–24:3. Accordingly, Patent Owner’s argument that a skilled artisan would not have had a reasonable expectation of success in combining Rabbe, Yung, and Gruenwald to arrive at the claimed *conformance* limitations is inapposite to claim 13.

IPR2020-01142

Patent 8,833,834 B2

(3) *A POSITA would not have been motivated to thermoform Rabbe's tray based on Yung and Gruenwald*

Related to Patent Owner's arguments discussed above (*see supra* § II.D.4.a.1), Patent Owner further argues that a "POSITA would not have been motivated to thermoform Rabbe's tray based on Yung and Gruenwald." PO Resp. 55. In presenting this argument, Patent Owner submits numerous sub-arguments, which we address individually, below.

First, Patent Owner reiterates that Yung is compression molded, and contends that thermoforming *would be cost prohibitive*. *Id.* Patent Owner further asserts that "Yung's disclosure of waterproof foams would have precluded thermoforming" (*id.* at 56) and that "[f]oamed PE and EVA have different properties than regular PE, and very different properties from thermoset rubber" (*id.* at 57) (emphasis omitted) and "thermoforming Rabbe's tray from Yung's PE or EVA foam *would not produce the waterproof product* Rabbe desires" (*id.* at 58 (emphasis added)).

We disagree with Patent Owner's assertions that thermoforming Yung's material would have been cost prohibitive and would have not produced a waterproof product. Rather, we agree with Petitioner that Patent Owner takes "a far-too-narrow approach to obviousness, bodily incorporating specific materials, arguing that Yung's tri-layer structure could not be thermoformed, and alleging that Yung's polyethylene was a foam and therefore could not be thermoformed." Pet Reply 11–12 (citing PO Resp. 40–42).

Yung broadly discloses that its "middle plastic plate or layer (20) as flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene-Vinyl Acetate (EVA) foam." Ex. 1006 ¶ 11. We agree with and credit

IPR2020-01142
Patent 8,833,834 B2

Dr. Koch’s testimony that a “POSA would have viewed Yung’s disclosure as encompassing a variety of polyethylene materials.” Ex. 1041 ¶¶ 95. We further agree with Dr. Koch that “both unfoamed and foamed polyethylene have been used in vehicle floor mats or related products.” *Id.* (citations omitted). The evidence supports Dr. Koch’s testimony. *See, e.g.*, Ex. 1057, 231 (“Polyethylene foams are used extensively in buoyancy applications because of their excellent water-resistant properties”); *see also* Ex. 1009, 0197 (“Polyethylene (PE) is . . . most often used in heavy-gauge thermoforming, primarily because of its very high melt strength, chemical resistance, and excellent outdoor weatherability”).

As for cost, we further credit Dr. Koch’s extensive testimony (Ex. 1041 ¶¶ 129–133) that using Yung’s thermoplastic materials based on Gruenwald’s thermoforming techniques would be a cost-effective way of manufacturing Rabbe’s floor tray. *See* Ex. 1041 ¶¶ 129–133. We agree with Dr. Koch that thermoplastics represent mostly low-cost materials and that tooling costs can be low. *Id.* ¶ 129 (citing Ex. 1007, 184). Indeed, Gruenwald teaches that “[t]hermoplastics represent mostly low-cost materials” and that “[t]ooling costs can be low.” Ex. 1007, 184.

Patent Owner further argues that “Rabbe’s tray is designed to fold its walls down” and “[i]f rubber isn’t used, the substitute material must have this same property—elasticity—otherwise, it could not perform its spring-back function.” PO Resp. 59 (citations omitted). Patent Owner also argues that “foamed PE or EVA would create an unacceptable and easily abraded wear surface” and that a “PE foam would quickly fall apart in the hostile environment that Rabbe himself describes.” *Id.*

IPR2020-01142
Patent 8,833,834 B2

As to elasticity and wear resistance, we disagree with Patent Owner's assertions. Rather, we agree with Petitioner that polyethylene, including polyethylene foams, may be both elastic and abrasion resistant. *See* Pet. Reply 21. Having weighed the competing evidence and testimony, we credit Dr. Koch's testimony in support of Petitioner's position. Ex. 1041 ¶¶ 112–115. In particular, we credit Dr. Koch's testimony that Patent Owner's arguments and testimony “focus granularly on some specific material rather than considering the general state of the art and the background knowledge that a POSA would bring in considering Rabbe, Yung, and Gruenwald.” *Id.* ¶ 114. Indeed, polyethylene floor mats existed at the time of the invention of the '834 patent. *See, e.g.*, Ex. 1053, 2:52–61; *see also* Ex. 1058, 3–6.

Patent Owner further argues that “[e]ven if Yung disclosed forming a tray from a sheet of PE . . . , Petitioner has not shown that the mere disclosure of PE would have led a POSITA to thermoforming.” PO Resp. 60. Patent Owner submits that “[n]either Petitioner nor Dr. Koch provides any explanation as to why a POSITA would turn to thermoforming had Yung in fact disclosed a sheet of PE, especially given that approximately 90% of PE grades are admittedly unsuitable for thermoforming.” *Id.*

We disagree with Patent Owner's assertions, as Patent Owner fails to account for the creativity of a person of ordinary skill. *See* Pet. Reply 11–12 (arguing the same); *see also* *KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). Even if 90% of polyethylene grades were not suitable for thermoforming, we credit Dr. Koch's testimony that “[t]he thermoplastic materials in Yung's floor mat

IPR2020-01142
Patent 8,833,834 B2

are well suited for Rabbe’s floor tray and thermoforming.” Ex. 1041 ¶¶ 141–145. Specifically, we credit Dr. Koch’s testimony that “it is well known that polyethylene foam can be thermoformed into a floor mat” and that “[p]olyethylene foam is well known for its thermoformability.” *Id.* ¶ 142 (citing Ex. 1068, 23–27). We further credit Dr. Koch’s testimony that an ordinarily skilled artisan “would have sought to use Yung’s polyethylene material—foamed or unfoamed—for Rabbe’s floor tray to provide a lightweight, durable, and waterproof material.” *Id.* ¶ 128.

Patent Owner further argues that an ordinarily skilled artisan “would not be motivated to look to Yung’s middle layer in isolation.” PO Resp. 60. Patent Owner correctly points out that Yung discloses a three-layer floor mat with a polyester fabric, a middle plastic layer, and a net lining. *See id.* at 60–61 (“Yung’s ‘invention is novel in design by using the three [k]inds of material a polyester fabric (10), a plastic plate or layer (20), and a net lining (30)’ that are bound to form ‘a whole plate-shaped mat, and the mat (100) will not move on the carpet.’” (quoting Ex. 1006 ¶ 15) (alteration in original)). Patent Owner explains that Petitioner “fail[ed] to explain why a POSITA would have disregarded Yung’s teachings about the advantages of its three-layer design. And looked only to Yung’s middle layer.” *Id.* at 61.

We disagree with Patent Owner’s narrow reading of Yung, which we find does not fully appreciate what Yung would have taught to a skilled artisan at the time of the invention. *Even if* Yung’s disclosed embodiment includes three layers, it nevertheless teaches a middle layer made of a waterproof, semi-rigid material, including polyethylene. *See* Ex. 1006 ¶ 11 (“The material of the above mentioned middle plastic plate or layer (20) as a flexible, light weight, and waterproof Polyethylene (PE) or Polyethylene—

IPR2020-01142
Patent 8,833,834 B2

Vinyl Acetate (EVA) foam.”). Having weighed the competing evidence and testimony, we credit Mr. Strachan’s testimony that “[t]he materials of Yung’s tri-layer floor mat would have led a POSA to thermoforming.” Ex. 1042 ¶¶ 75–81. We further credit Mr. Strachan’s testimony that polyethylene, which Yung teaches, was “[c]ommonly used for heavy-gauge thermoforming. . . [and] possesses high impact strength, chemical resistance, and outdoor weatherability—all characteristics fitting for a vehicle floor mat.” *Id.* ¶ 76 (citing Ex. 1009, 0197). Indeed, the evidence supports Mr. Strachan’s testimony. *See, e.g.*, Ex. 1009, 0197 (“Polyethylene (PE) is the crystalline polymer most often used in heavy-gauge thermoforming, primarily because of its very high melt strength or hot strength High-density polyethylene (HDPE) has . . . exceptional impact strength, chemical resistance, and excellent outdoor weatherability.”).

(4) *Yung teaches away from thermoforming a floor tray that closely conforms*

Patent Owner also asserts that Yung *teaches away* from thermoforming because Yung addresses the problem of floor mats sliding around “by compression molding a one-size-fits-all mat out of the tri-laminate material with a special bottom layer to create friction.” PO Resp. 62 (citing Ex. 2041 ¶ 162). Patent Owner explains that “Yung’s mat incorporates ‘multiple foam particles’ to create drag against the carpeting and keep the mat from moving.” *Id.* (citing in part Ex. 1006 ¶¶ 6, 11). Patent Owner explains that the ’834 patent, on the other hand, solves the same problem of “mats sliding around” “by having tray walls that conform ‘within one-eighth of an inch’ in specified portions to respective walls of the vehicle foot well.” *Id.* (citing Ex. 2041 ¶ 161).

IPR2020-01142
Patent 8,833,834 B2

We disagree with Patent Owner’s argument for at least two reasons.

First, Petitioner does not propose to incorporate Yung’s under net lining 30 (with foam particles 32) into Rabbe’s floor tray. *See* Pet. 37–38. Rather, Petitioner relies on Yung’s teaching of a polyethylene middle layer (*id.* at 34) and a floor tray with curved transitions (*id.* at 37). Patent Owner’s argument focusing on Yung’s under net lining 30 (with foam particles 32) is inapposite to the challenge before us.

Second, a reference that “‘does not criticize, discredit, or otherwise discourage investigation into’ the claimed invention does not teach away.” *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017); *see also* Pet. Reply 12 (arguing the same). Even if “Yung’s mat incorporates ‘multiple foam particles’ to create drag against the carpeting and keep the mat from moving,” as Patent Owner explains (PO Resp. 62), this teaching does not criticize, discredit, or otherwise discourage thermoforming Rabbe’s floor tray, as Petitioner proposes (*see* Pet. 47–52). *See also* Pet. Reply 12 (“Yung’s foam particles do not teach away from thermoforming a custom-fit floor tray.”).

(5) *Gruenwald teaches away from thermoforming Rabbe’s floor tray as claimed*

Patent Owner argues that because “Yung’s mat is compression molded . . . a POSITA . . . would have had no reason to look to Gruenwald’s treatise on thermoforming.” PO Resp. 64; *see also supra* § II.D.4.a.1 (addressing Patent Owner’s argument that Yung’s flexible, universal floor mat was compression molded, not thermoformed). Patent Owner explains that “Rabbe’s tray walls can be folded down,” but “Gruenwald *teaches away* from sheet thermoforming a floor tray that is designed to fold.” *Id.* (citing

IPR2020-01142
Patent 8,833,834 B2

Ex. 2041 ¶¶ 168–171) (emphasis added). In support of this argument, Dr. Osswald testifies that “[a] tray-shaped product made of a thick thermoplastic material sheet is not foldable.” Ex. 2041 ¶ 103. Patent Owner further explains that “[t]hermoforming Rabbe’s trays would create points of failure at the sharp corners and at the approximately 90 degree edges going from the floor section to the wall sections.” PO Resp. 67.

We disagree with Patent Owner.

Although Rabbe’s tray walls are designed to fold, they fold to “enable[] the protective tray to be released for removal from the vehicle interior.” Ex. 1005, 2:12–13; *see also* Pet. Reply 13 (pointing out the same). We agree with and credit Dr. Koch’s testimony that

The only folding that is needed is enough to remove the tray, and a POSA would recognize that bending the sides inward slightly is all that would be needed to remove it. That is, the purpose of the “fold” term in Rabbe is to allow the raised edges of Rabbe’s floor tray to be flexed away from the sides of the vehicle footwell.

Ex. 1041 ¶ 151 (citing Ex. 1046, 88:15–16). We further agree with and credit Dr. Koch’s testimony that “Gruenwald’s heavy-gauge thermoforming techniques do not teach away from the flexibility needed for Rabbe’s floor tray” (*id.* ¶ 153) and that “[a] POSA would have understood that thermoforming Rabbe’s floor tray with the polyethylene (unfoamed or foamed) disclosed in Yung would have yielded raised edges that can flex away to promote handling of the floor mat” (*id.* ¶ 152).

(6) Petitioner has not identified a realistic motivation to combine

Patent Owner contends that “Petitioner has not identified a realistic motivation to combine.” PO Resp. 68. In support of this argument, Patent

IPR2020-01142
Patent 8,833,834 B2

Owner asserts that “a POSITA would recognize that thermoforming Rabbe’s trays would not be cost-effective” because “Rabbe’s trays have severely ‘unequal heights,’ which would result in significant material waste.” *Id.* at 68–69. Dr. Osswald testifies that thermoforming Rabbe’s trays would result in “having to cut out a significant percentage . . . of the sheet” and Gruenwald’s other attempts to control variations in wall thickness “also drives up the cost.” Ex. 2041 ¶ 99; *see also* PO Resp. 69 (citing the same).

We disagree with Patent Owner’s argument. *Even if* portions of Rabbe’s tray had to be trimmed away as a result of the thermoforming process, such material would be recycled to avoid waste.

We credit Dr. Koch’s testimony that “a POSA would have understood that the excess material—trim material—in a thermoforming process can be reused because it is a thermoplastic.” Ex. 2041 ¶ 131 (citing Ex. 1008, 0055). The evidence cited by Dr. Koch supports his testimony. *See, e.g.*, Ex. 1008, 0055 (“The thermoforming industry has long been concerned about the use of the word ‘scrap’ to describe the non-product portion of the sheet. Thermoforming economics dictate that the non-product should be reground, mixed with virgin resin, and reprocessed into useful product.”). Having weighed the competing testimony and evidence, we further credit Dr. Koch’s testimony that “[f]or custom floor trays like Rabbe, thermoforming would have been the most cost-effective approach.” Ex. 1041 ¶ 133.

Having considered Patent Owner’s arguments and evidence, we agree with Petitioner that a skilled artisan would have manufactured Rabbe’s floor trays using thermoforming as a low-cost method of manufacture. *See* Pet. 47–53; *see also* Ex. 1003 ¶ 152 (“[A] POSA would have turned to

IPR2020-01142

Patent 8,833,834 B2

references specifying known materials and known methods for cost-effective manufacturing of vehicle floor trays This would have led a POSA to Yung, which teaches that vehicle floor trays can be manufactured with rigid- or semi-rigid thermoplastic material.”). We credit Dr. Koch’s testimony that a “POSA would have also been aware of the numerous other prior-art floor trays made of thermoplastic material by the low-cost and versatile thermoforming process.” Ex. 1003 ¶ 152. We also agree with Petitioner that the proposed modification would have yielded a floor tray that is “lightweight, durable, [and] waterproof” for easy removal and cleaning. *See* Pet. 52. Petitioner’s reasoning for using thermoforming to manufacture Rabbe’s floor tray is articulately reasoned and supported by the teachings of Yung, Gruenwald, Petitioner’s testimony, and the other evidence of record.

(7) *Summary of Preamble*

We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the subject matter recited in the preamble for the reasons stated by Petitioner in the Petition, which we adopt as our own findings, and as further supported by the testimony of Dr. Koch and Mr. Strachan.⁴

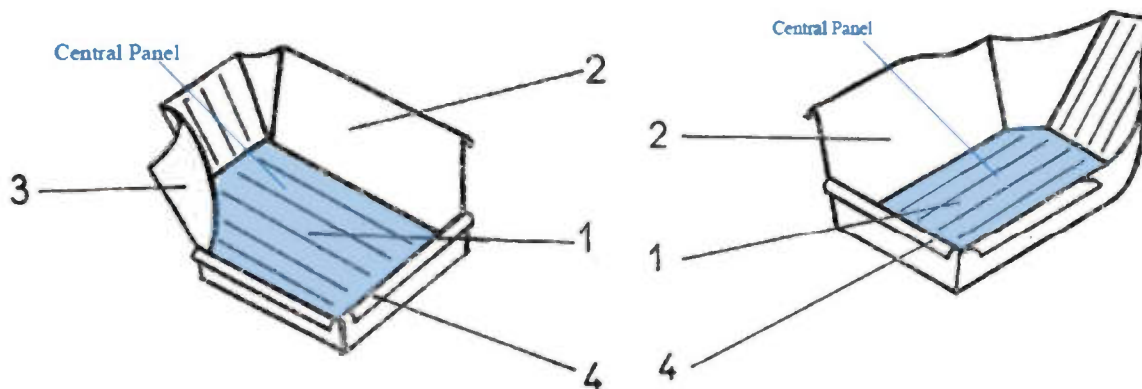
b) *Element 13(a) – a substantially horizontal central panel*

To address this limitation, Petitioner submits that “Rabbe’s and Yung’s central panels are ‘substantially horizontal.’” Pet. 58 (citing Ex. 1005, Figs. 3–4). Petitioner submits an annotated version of Rabbe’s

⁴ *See supra* n.3.

IPR2020-01142
 Patent 8,833,834 B2

Figures 3 and 4 to illustrate this assertion (*see id.* at 34), which we reproduce, below:



EX1005, FIGs. 3-4 (annotated).

Figures 3 and 4 depict Rabbe’s protective floor trays for the driver (left) and front passenger (right). *See Ex. 1005, 2.* Petitioner asserts that “Rabbe’s central panel is at 1.” Pet. 34.

Patent Owner does not dispute this assertion. *See generally* PO Resp.

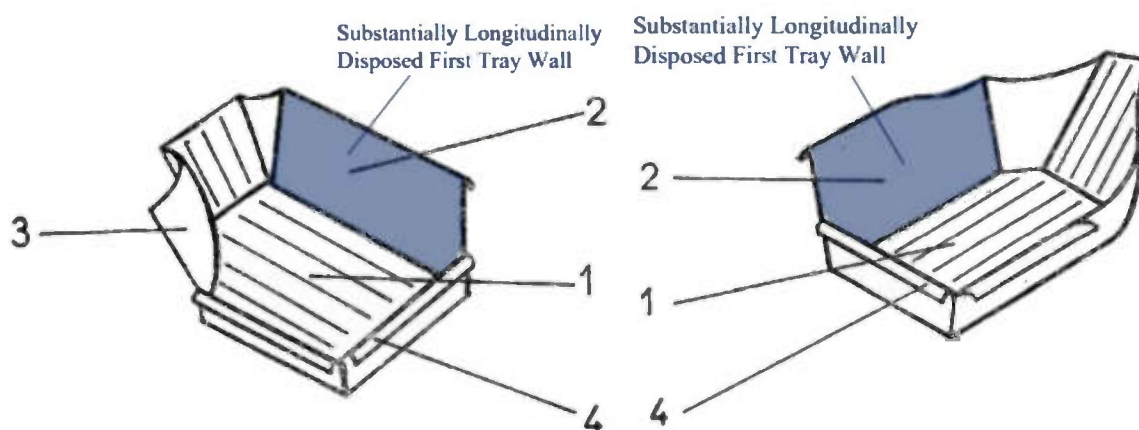
We find that Petitioner has established by a preponderance of the evidence that Rabbe discloses a “substantially horizontal” central panel as required by claim element 13(a).

c) Element 13(b) – a first tray wall joined to the central panel by a curved transition, the first tray wall standing up from the central panel and being substantially longitudinally disposed

To address this limitation, Petitioner submits an annotated version of Rabbe’s Figures 3 and 4 (Pet. 36), which we reproduce, below:

IPR2020-01142

Patent 8,833,834 B2



EX1005, FIGs. 3-4 (annotated).

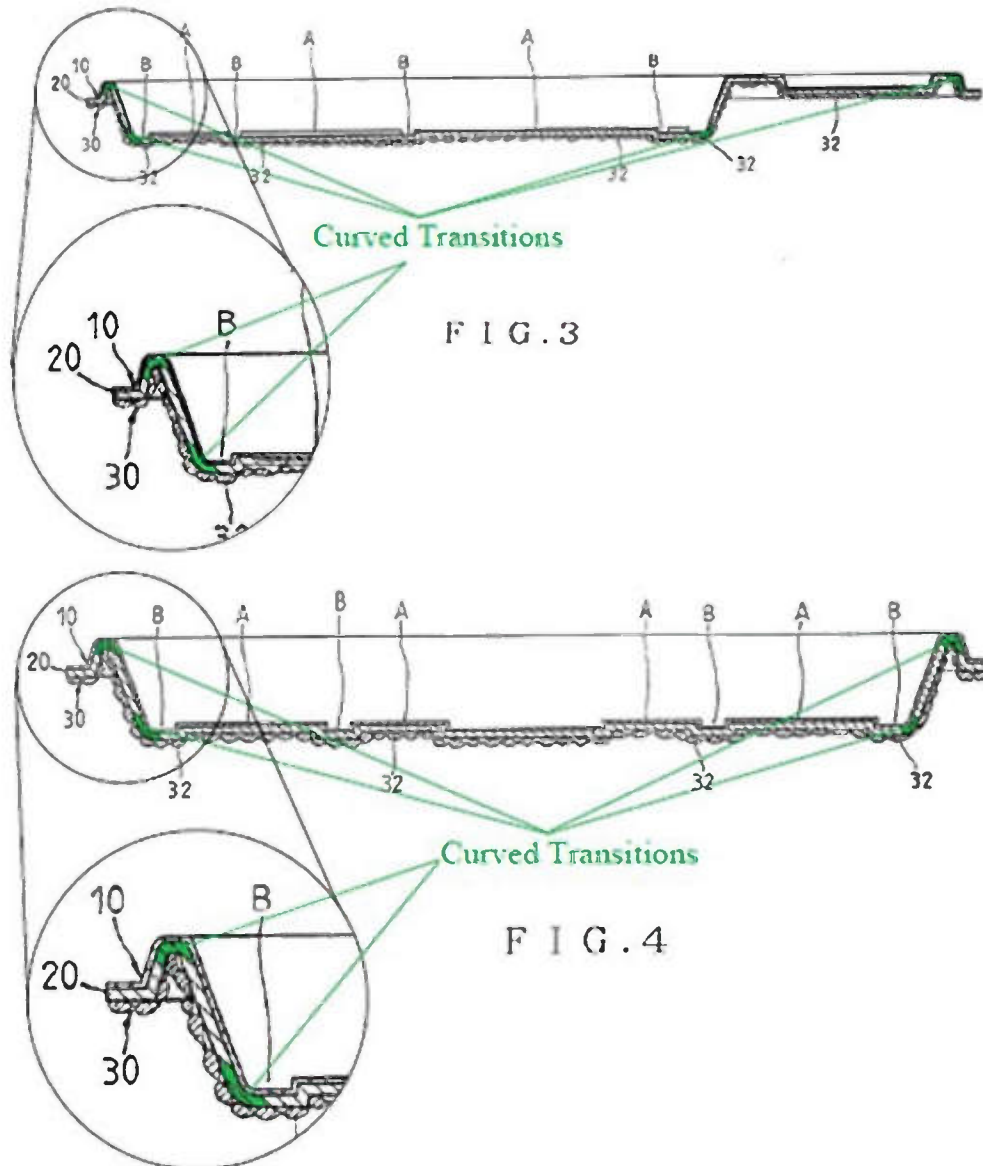
Figures 3 and 4 depict Rabbe's protective tray positioned beneath the feet of the driver (left figure) and front passenger (right figure). *See* Ex. 1005, 2. Petitioner submits that "Rabbe's floor tray includes a substantially longitudinally disposed first tray wall (e.g., 2) joined to (and standing up from) the central panel." Pet. 36 (citing Ex. 1003 ¶ 134; Ex. 1005, Figs. 3-4). Petitioner further submits that "Rabbe's floor and side panels are 'semi-rigid rubber or another material having the same properties.'" *Id.* (citing Ex. 1005, Abstr., 1:16-19). Petitioner explains that a "POSA would have understood this describes integral construction, i.e., from a single material, formed or molded into the desired shape." *Id.* at 36-37.

To address the claimed "curved transition" between the central panel and first tray wall, Petitioner relies on Gruenwald's teaching of avoiding sharp corners and using rounded edges to improve stiffness. *See id.* at 37 (citing Ex. 1007, 37, 53). Gruenwald teaches, "Sharp corners can lead to web formation on tall male molds and also carry the danger of brittle failure of the part. Rounded edges improve stiffness, reduce molded-in stresses, and are more likely to prevent warpage." Ex. 1007, 53. Petitioner also

IPR2020-01142

Patent 8,833,834 B2

submits an annotated version of Yung's Figures 3 and 4 to address the claimed curved transitions (Pet. 38), a copy of which we reproduce, below:



EX1006, FIGs. 3-4 (annotated).

Figures 3 and 4 depict “an improved mat used in cars” consisting of upper polyester fabric 10, middle plastic plate or layer 20, and under net lining 30. Ex. 1006 ¶ 10. According to Petitioner, and as shown in the annotated figures, “Yung discloses curved transitions along all sides of the central panel.” Pet. 37 (citing in part Ex. 1003 ¶ 137).

IPR2020-01142
Patent 8,833,834 B2

In combining the cited art, Petitioner reasons that a skilled artisan thermoforming Rabbe's floor tray using the thermoplastic materials disclosed by Yung would have been motivated to implement curved transitions between the central panel and the upwardly extending panels as explicitly taught in the thermoforming art. This is consistent with Yung's curved transitions at all sides of the central panel and with the principles of thermoforming disclosed by Gruenwald, e.g., avoiding "sharp corners." Doing so would have simply been applying a known technique (curved transitions) to a known product (thermoformed vehicle floor tray) that yielded predictable results (vehicle floor tray with curved transitions between the central panel and sidewalls *to improve stiffness and reduce failure points*).

Id. at 38–39 (citing Ex. 1003 ¶ 138; Ex. 1007, 37, 53, 163) (emphasis added).

Patent Owner argues that the "Rabbe-Yung-Gruenwald combination does not teach first, second, and third tray walls 'joined' with each other and a central panel of the tray by curved transitions integrally formed from a single sheet of polymeric material of substantially uniform thickness as claimed." PO Resp. 43–44. In support of this argument, Patent Owner presents two separate sub-arguments, which we address separately.

(1) Rabbe discloses an assembly, not an integrally formed tray

Patent Owner asserts that Rabbe discloses an assembly, not an integrally formed tray, and that "Rabbe, properly translated, describes its floor tray as an 'assembly,' which suggests to a POSITA that Rabbe contemplated assembling his tray from multiple pieces of rubber (e.g., using well-known and commonly available adhesives)." PO Resp. 44 (citing Ex. 2041 ¶¶ 84–85) (emphasis omitted). Dr. Osswald testifies that a

IPR2020-01142
Patent 8,833,834 B2

POSITA would have recognized that Rabbe’s trays preclude integral formation, due to the presence of undercuts, flanges, and “abrupt, straight corner[s].” *See id.* at 45–47 (citations omitted).

We disagree with Patent Owner’s position that the presence of the word “assembly” in Rabbe teaches that Rabbe’s floor tray is comprised of multiple pieces that are adhered to one another. *See* Pet. Reply 15 (arguing the same). We find no disclosure in Rabbe that describes stitching or otherwise adhering rubber pieces to form its tray. *See* Ex. 1041 ¶ 65 (finding the same).

Rather, we agree with Petitioner that Patent Owner’s “attempt to limit Rabbe’s floor tray to a thermoset stitched or glued from separate pieces finds no support in Rabbe and ignores that thermoforming floor trays was ‘within the basic knowledge of a POSA.’” Pet. Reply 15. We credit Dr. Koch’s testimony that Rabbe does not teach a floor tray assembled by multiple pieces. Ex. 1041 ¶¶ 64–66. In particular, we credit Dr. Koch’s testimony that “[t]he noun ‘assembly,’ when referring to a part, does not suggest a specific manufacturing process, and thus does not require that the part was assembled from separate pieces. Instead, ‘assembly’ is a term used in the industry to refer generically to a finished product, however it is made.” *Id.* ¶ 64.

As to Dr. Osswald’s testimony regarding the presence of undercuts, sharp corners, and flanges, which teach that Rabbe’s floor tray is not integrally formed, we disagree. Rather, we agree with and credit Dr. Koch’s testimony that Rabbe’s floor tray, even with the supposed sharp corners, deep draws, and undercuts, can be thermoformed. *Id.* ¶¶ 84–91; *see also*, *e.g.*, *id.* ¶ 87 (“flanges can easily be thermoformed. . . . Prior art references,

IPR2020-01142
Patent 8,833,834 B2

such as Bailey [Ex. 1053], disclose thermoformed products with similar flanges” (citing Ex. 1053, 6:1–33, Fig. 4; Ex. 1008, 0516–0517)). We further credit Mr. Strachan’s testimony that thermoforming parts with undercuts was commonplace at the time of the invention. *See* Ex. 1042 ¶¶ 66–69; *see also id.* ¶ 67 (“a POSA would have understood how to account for undercuts by making modifications to the thermoform mold . . . it was commonplace before 2004.”).

(2) The combination of Rabbe, Yung, and Gruenwald does not disclose the claimed integrally formed panels

Patent Owner submits that “Rabbe’s rubber trays are obviously not made of thermoplastic materials and . . . contain features that a POSITA would understand preclude the use of thermoforming.” PO Resp. 48 (citing in part Ex. 2041 ¶ 102) (emphasis omitted). Patent Owner argues that “a POSITA would not have been led to thermoforming based on Rabbe’s disclosure . . . [a]nd there is nothing in Petitioner’s combination of references that supports thermoforming Rabbe’s tray in order to arrive at the claimed integral panels formed from a single sheet of thermoplastic material.” *Id.* (citing Ex. 2041 ¶¶ 95–105).

As explained similarly above, we disagree with Patent Owner’s assertions that Rabbe’s trays cannot be made of thermoplastic materials and that the cited references, namely Yung and Gruenwald, do not support Petitioner’s reasoning for manufacturing Rabbe’s tray by thermoforming. *See supra* § II.D.4.a. To reiterate, we credit Dr. Koch’s testimony that Rabbe’s teaching of other materials “having the same properties” would have led a POSITA to consider using thermoplastics. Ex. 1041 ¶ 80. We

IPR2020-01142

Patent 8,833,834 B2

agree with Petitioner that a skilled artisan would have manufactured Rabbe's floor trays using thermoforming as a low-cost method of manufacture. *See* Pet. 47–53; *see also* Ex. 1003 ¶ 152.

(3) *Summary of Element 13(b)*

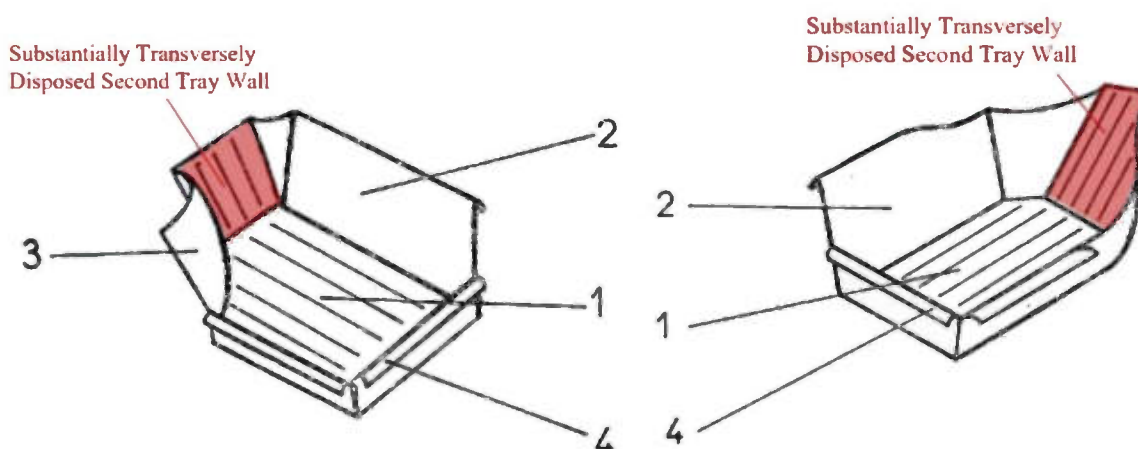
We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(b) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

d) Element 13(c) – a second tray wall joined to the central panel and to the first tray wall by respective curved transitions, the second tray wall standing up from the central panel and being substantially transversely disposed

Petitioner submits that Rabbe discloses a second tray wall joined to (and standing up from) the central panel and to the first tray wall by respective curved transitions. *See* Pet. 39. To illustrate this position, Petitioner submits an annotated version of Rabbe's Figures 3 and 4 (*id.* at 40), which we reproduce below:

IPR2020-01142

Patent 8,833,834 B2



EX1005, FIGs. 3-4 (annotated).

According to Petitioner, the Figures 3 and 4 depict second tray walls standing up from central panel 1. *See* Pet. 40.

As with Element 13(b), Petitioner also cites to Yung’s “curved transitions” and Gruenwald’s teaching of avoiding sharp corners and reasons that a skilled artisan would have further modified Rabbe’s floor tray to further implement additional “curved transitions” in order to improve stiffness and reduce failure points. *See* Pet. 41–42.

Patent Owner does not present additional arguments contesting Petitioner’s position as to Element 13(c). *See generally* PO Resp.

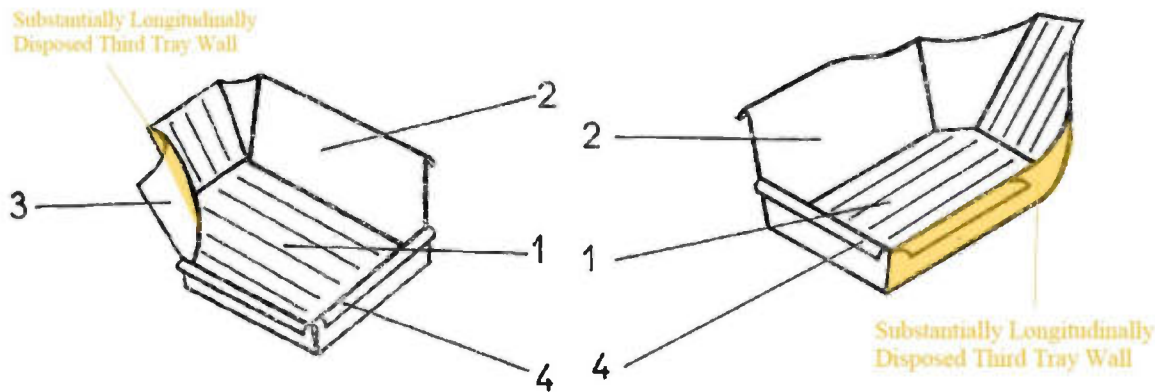
We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(c) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

IPR2020-01142

Patent 8,833,834 B2

e) *Element 13(d) – a third tray wall joined to the central panel and to the second tray wall by respective curved transitions, the third tray wall standing up from the central panel and being substantially longitudinally disposed*

Petitioner submits that “Rabbe discloses a substantially longitudinally disposed third tray wall joined to (and standing up from) the central panel and to the second tray wall by respective curved transitions.” Pet. 42 (citing Ex. 1003 ¶ 142). Petitioner submits annotated versions of Rabbe’s Figures 3 and 4 (*id.*), which we reproduce below:



EX1005, FIGs. 3-4 (annotated).

Petitioner submits that these figures depict third tray wall (identified with reference numeral 3 in the left figure) joined to central panel 1 and second tray wall. *See* Pet. 42.

Petitioner also cites to Yung’s “curved transitions” and Gruenwald’s teaching of avoiding sharp corners and reasons that a POSITA would have further modified Rabbe’s floor tray to have additional curved transitions in order to improve stiffness and reduce failure points. *See id.* at 43.

Patent Owner does not present additional arguments contesting Petitioner’s position as to Element 13(d). *See generally* PO Resp.

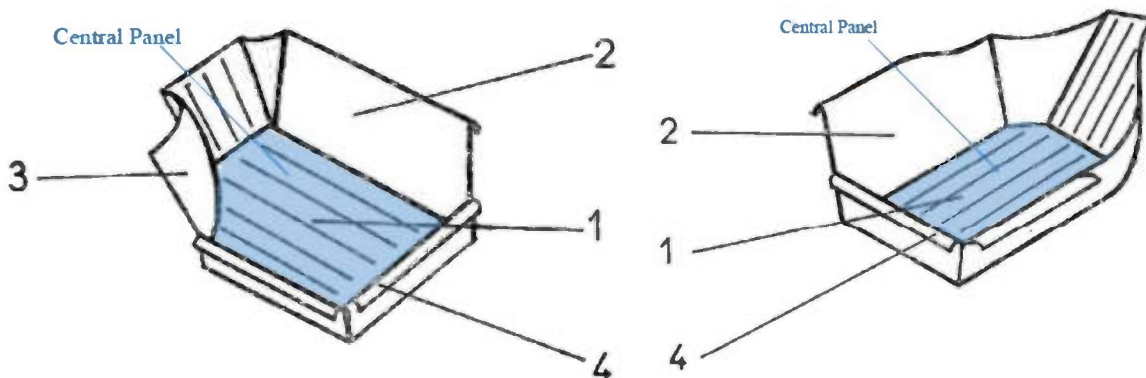
IPR2020-01142

Patent 8,833,834 B2

We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(d) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

f) Element 13(e) – the central panel having a general portion with an upward facing general surface and a reservoir portion with an upwardly facing general surface, the general surface of the reservoir portion disposed vertically below the general surface of the general portion

Petitioner submits that “both Rabbe and Yung disclose a central panel having a general portion with an upward facing general surface” and submits annotated versions of Rabbe’s Figures 3 and 4 to illustrate. Pet. 59. We reproduce those annotated figures, below:



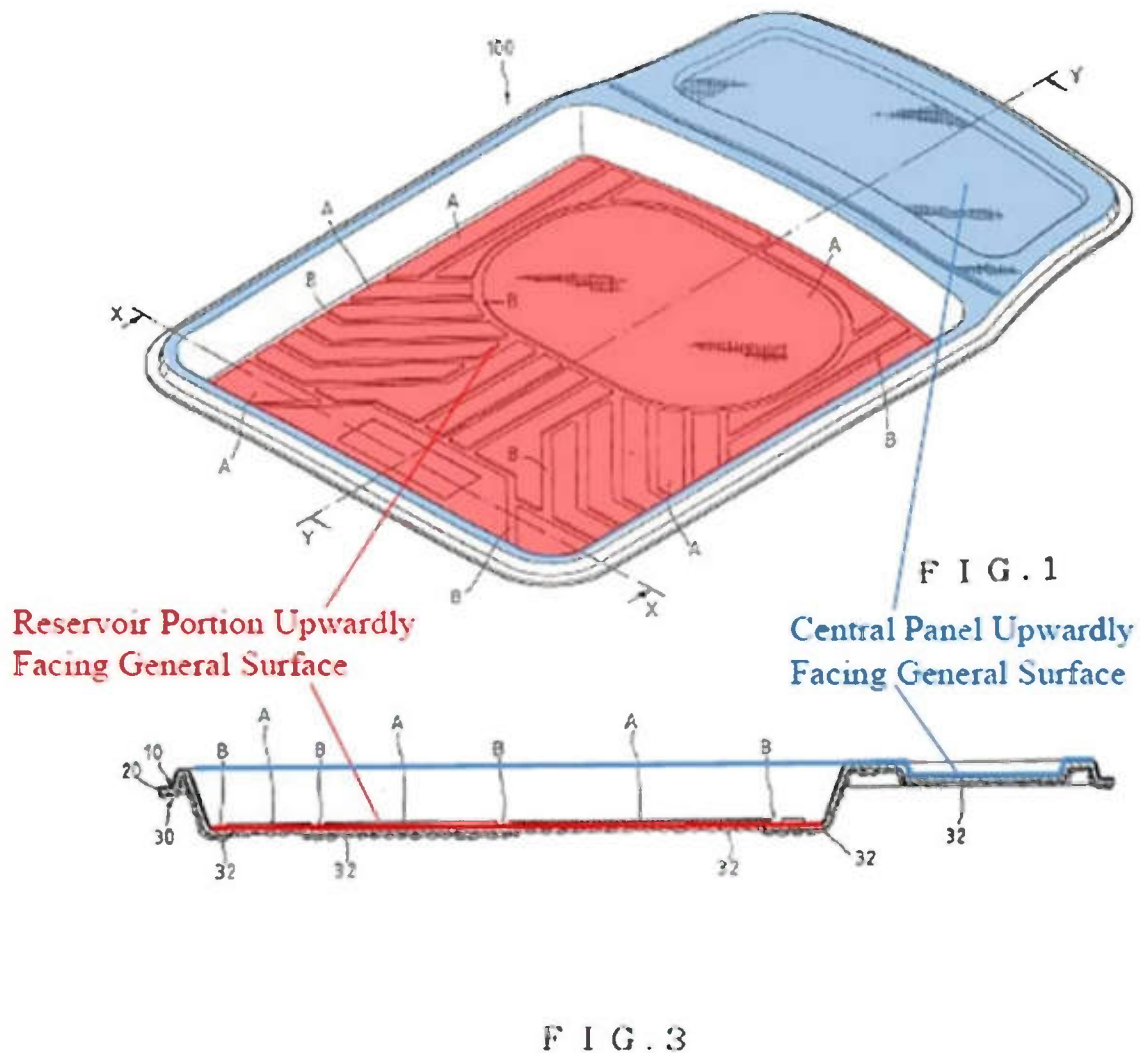
EX1005, FIGs. 3-4 (annotated).

As shown above, Petitioner submits that Rabbe’s “central panel” 1 has an upward facing general surface. *See id.* Petitioner acknowledges, however, that “[w]hile Rabbe discloses protecting the vehicle interior from water, mud, etc., and having portions of the floor tray at different heights

IPR2020-01142
 Patent 8,833,834 B2

(corrugations), it does not expressly disclose a reservoir.” *Id.* (citing Ex. 1005, Abstr., 2:7–9).

Petitioner submits that Yung discloses a reservoir. *See id.* (citing Ex. 1006 ¶¶ 12–13; Ex. 1003 ¶ 177). Petitioner submits an annotated version of Yung’s Figures 1 and 3 (*id.* at 60), which we reproduce, below:



EX1006, FIG. 3 (annotated).

As shown above, Petitioner submits that Figures 1 and 3 depict Yung’s reservoir portion with an upwardly facing general surface (shown in red) that

IPR2020-01142
Patent 8,833,834 B2

is disposed vertically below the general surface of the central panel's general portion (shown in blue). *See id.* at 59–60.

In combining Rabbe with Yung's teachings, Petitioner reasons that “[a] POSA would have been motivated to dispose the reservoir below other parts of the floor tray because water naturally flows to the lowest area, so locating the reservoir in a recessed or lower area is a logical design choice.” *Id.* at 60 (citing in part Ex. 1003 ¶ 177, Ex. 1019).

Patent Owner does not present additional arguments contesting Petitioner's position as to Element 13(e). *See generally* PO Resp.

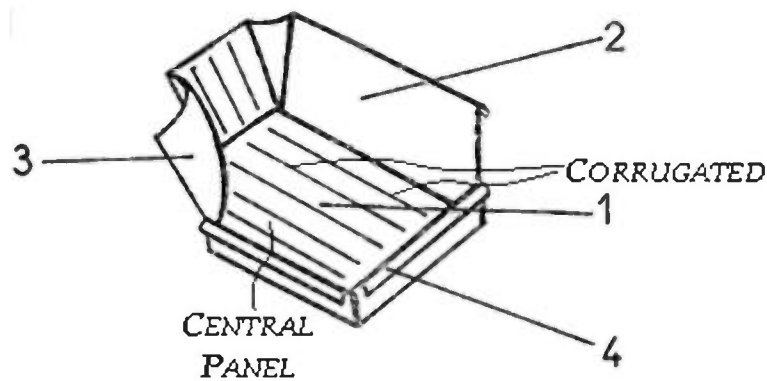
We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(e) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

g) Element 13(f) – plurality of elongate, spaced-apart, hollow baffles formed within the reservoir portion to stand up from the general surface of the reservoir portion

Petitioner submits an annotated version of Rabbe's Figure 5 to address this limitation. Pet. 61. We reproduce that annotated figure, below:

IPR2020-01142

Patent 8,833,834 B2

RABBE - FIG. 3

EX1005, FIG. 3.

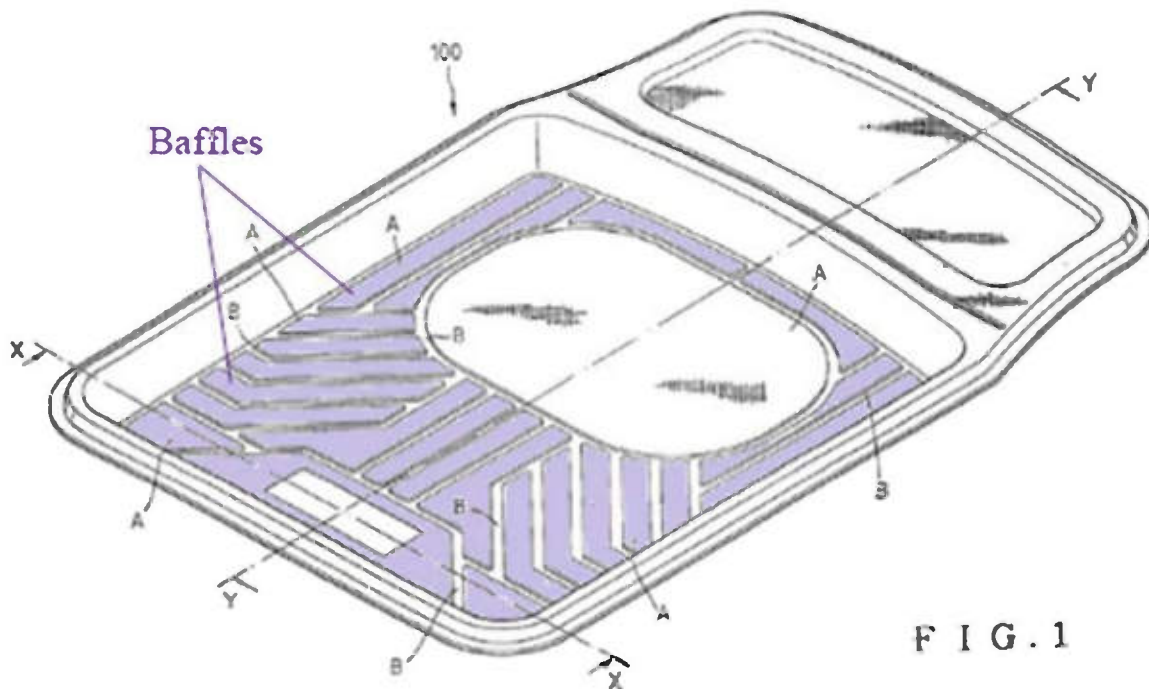
Petitioner submits that annotated Figure 5 depicts Rabbe's central panel includes corrugations that are "elongate, spaced-apart surfaces that elevate the vehicle occupant's feet above the bottom surface of the central panel."

See id.

Petitioner also submits that Yung discloses similar structure, submitting an annotated version of Yung's Figure 1 (*see* Pet. 61–62), a copy of which we reproduce, below:

IPR2020-01142

Patent 8,833,834 B2



EX1006, FIG. 1 (annotated).

Figure 1 “is a perspective view of the improved mat used in cars” of Yung’s invention. Ex. 1006 ¶ 6. Yung discloses that “[t]here are multiple symmetrical bevel grooves formed between [] umbos naturally, and the grooves are downward . . . [and] can collect the muck on the shoes.” *See id.* ¶ 5. Petitioner submits that Yung’s “umbos” are “elongated, spaced-apart surfaces that stand up from the general surface of the reservoir portion that elevate the vehicle occupant’s feet above fluid in the reservoir.” Pet. 61 (citing in part Ex. 1006 ¶ 13). Petitioner also submits that “Yung’s baffles are also hollow” and that “hollow features are part of thermoforming.” *Id.* at 62 (citing in part Ex. 1003 ¶¶ 67–77).

In combining Rabbe with Yung, Petitioner reasons that a POSITA would have modified Rabbe’s protective tray “to include well-known hollow

IPR2020-01142
Patent 8,833,834 B2

baffles, for example reducing weight and cost.” *Id.* (citing in part Ex. 1003 ¶ 181). Dr. Koch testifies to the same. Ex. 1003 ¶ 181.

Patent Owner does not present additional arguments contesting Petitioner’s position as to Element 13(f). *See generally* PO Resp.

We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(f) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

h) Element 13(g) – each of the general portion of the central panel, the reservoir portion of the central panel, the baffles and the first, second and third tray walls having an outer surface adapted to face a respective surface of a vehicle foot well and an inner surface opposed to the outer surface, a thickness measured between the respective inner and outer surfaces of the first tray wall, second tray wall, third tray wall, general portion of the central panel, reservoir portion of the central panel and the baffles being substantially uniform throughout the tray

Petitioner reasons that a POSITA, when thermoforming Rabbe’s tray, would have achieved “a thermoformed part having substantially uniform thickness throughout.” Pet. 44 (citing in part Ex. 1007, 167). Petitioner reasons that Gruenwald discloses thermoforming methods, including billow drape forming, vacuum snap-back forming, and plug assist forming “to control thinning and produce parts having a uniform wall thickness.” *See id.* (citing Ex. 1003 ¶ 146). Based on Gruenwald’s teachings, Petitioner reasons that “a POSA would have been motivated to reduce thinning and achieve a

IPR2020-01142
Patent 8,833,834 B2

substantially uniform thickness because thinning creates weak areas in thermoformed products.” *Id.* at 45 (citing in part Ex. 1003 ¶ 147).

Patent Owner does not present additional arguments contesting Petitioner’s position as to Element 13(g). *See generally* PO Resp.

We find that Petitioner has established by a preponderance of the evidence that Rabbe in view of Yung and Gruenwald satisfies the limitations recited in Element 13(g) for the reasons and supporting evidence identified by Petitioner in the Petition, which we adopt as the basis of our own findings.

*i) Secondary Considerations (claims 13–15)*⁵

Notwithstanding what the teachings of the prior art would have suggested to one skilled in the art, objective evidence of non-obviousness (“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).

To be relevant, evidence of non-obviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). Thus, to be accorded substantial weight, there must be a *nexus* between the merits of the claimed invention and the evidence of secondary

⁵ In the spirit of brevity, we address the secondary considerations evidence as it applies to each of claims 13–15 here.

IPR2020-01142
Patent 8,833,834 B2

considerations. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995).

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).

Patent Owner submits that the manufacture and sale of its WeatherTech floor trays and molds provide the following evidence of non-obviousness: (1) long felt but unresolved need (PO Resp. 75–77); (2) commercial success (*id.* at 77–78); (3) industry praise (*id.* at 78–79); (4) competitor licenses to the '834 patent (*id.* at 80); and (5) failure of others (PO Sur-Reply 41).

(1) *Nexus*

Petitioner contends that Patent Owner did not show a nexus. Pet. Reply 25.

As to claims 13–15, we agree.

Patent Owner's evidence is not commensurate in scope with the invention recited in claims 13–15, and is not relevant to these claims. *See Kao*, 639 F.3d at 1068. Although Patent Owner submits two claim charts matching the features of its WeatherTech product to claim 1 of the '834 patent (Exs. 2132, 2133), Patent Owner *does not* submit a claim chart for claim 13, 14, or 15 of the '834 patent⁶; *see also* PO Sur-Reply 39 (“A nexus is established if the claim reads on the product. . . Claims 1, 5, and 9 require that a specified portion of an outer surface of the tray walls be within

⁶ Patent Owner submits a *partial* claim chart for claim 13 of U.S. Patent No. 8,336,944 B2 (Ex. 2133, 15), but not for claim 13 of the '834 patent.

IPR2020-01142
Patent 8,833,834 B2

one-eighth of an inch of respective footwell walls.”). Although we are not aware of a requirement to submit a claim chart to establish nexus, Patent Owner does not connect the limitations of claims 13–15 to its secondary consideration evidence. Rather, Patent Owner’s evidence of non-obviousness points to features not recited in claims 13–15, namely, the close-conformance of the WeatherTech floor tray to a vehicle’s interior. As our reviewing court instructed us in *Fox Factory*, even if we assume that the WeatherTech product falls within the scope of claims 13–15, due to the breadth of these claims, the WeatherTech product is not coextensive with these claims because the evidence of non-obviousness focuses on the close conformity of the tray walls to the vehicle foot well. *See Fox Factory, Inc. v. SRAM, LLC*, 813 Fed. App’x 539, 542 (Fed. Cir. 2020) (“a product is not coextensive with a claimed invention simply because it falls within the scope of the claim”); *see also SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1319 (Fed. Cir. 2015) (“If a product both embodies the claimed features and is coextensive with the claims at issue, a nexus is presumed. In other words, a nexus exists if the commercial success of a product is limited to the features of the claimed invention.” (citation and quotation marks omitted)).

As explained in more detail below, Patent Owner’s secondary consideration evidence focuses on the *close conformity* of the tray to the vehicle foot well, features that are *not* recited in claims 13–15. *See, e.g.*, PO Resp. 70 (“customers are willing to pay a premium for WeatherTech floor trays that actually fit like a glove” (emphasis omitted)); *see also* Ex. 1001, 22:56–24:3 (claims 13–15).

Accordingly, Patent Owner has failed to establish it is entitled to a presumption of nexus between the invention recited in claims 13–15 and the

IPR2020-01142
Patent 8,833,834 B2

objective evidence of non-obviousness.

(2) *Long felt but unresolved need*

In presenting its “long felt but unresolved need evidence,” Patent Owner submits that prior floor mats had “[‘]limited customer acceptance because of their loose fit’ and tendency to ‘rattle, deform, shift and flop about.’” PO Resp. 75 (quoting Ex. 1001, 1:45–2:12). Mr. Sherman testifies that “[w]hile some prior art floor trays were advertised as having a ‘perfect’ or ‘exact’ fit . . . it was universally recognized in the industry that this was mere puffery.” Ex. 2043 ¶ 161; *see also* PO Resp. 76 (quoting the same). Patent Owner further submits that “[o]thers tried, but failed, to create a tray that closely conformed to the sides of the foot well” (*id.* (citing Ex. 1001, 1:58–2:16)) and that “[t]he ’834 Patent solved this long-felt ‘need . . . for a floor tray that will have a more exact fit to the vehicle foot well’” (*id.* (citing Ex. 1001, 2:12–16, 2:28–33)).

As shown above, the long-felt need demonstrated by Patent Owner’s evidence relates entirely to the *closely-conforming* floor tray, a feature not recited in claims 13–15.

(3) *Commercial success*

Patent Owner submits that “[t]he commercial success of WeatherTech’s vehicle floor trays since their introduction in 2004 is incredible.” PO Resp. 77 (citing Ex. 2042 ¶¶ 73–85). In support of the commercial success argument, Patent Owner explains that “[t]his is primarily due to one reason—the way WeatherTech’s trays fit in the vehicle for which they were custom manufactured.” *Id.* at 78 (citing Ex. 2042 ¶¶ 81–85).

IPR2020-01142
Patent 8,833,834 B2

Mr. Granger testifies that “[c]onsumer reviewers often point out the closeness of fit as the salient characteristic of the part, or as the reason for purchase.” Ex. 2042 ¶ 83; *see also id.* ¶ 84 (“The biggest reason for the WeatherTech FloorLiner’s commercial success . . . is that they ‘fit’ the foot wells for which they were custom-designed, to a degree not achieved by competitors.”).

As explained above, the evidence of commercial success of the WeatherTech floor trays leads us to find that the commercial success is due to the *close-conformity* of the trays in the foot well, a feature not recited in claims 13–15.

(4) *Industry praise*

Patent Owner submits that “[i]ndustry participants have praised WeatherTech’s® floor trays for features described and claimed in the ’834 Patent—including closeness of fit, the baffle/reservoir arrangement, and panel arrangement.” PO Resp. 78 (citing Ex. 2043 ¶¶ 169–171). Mr. Sherman testifies, “In my opinion, this praise stemmed from the combination of the claimed features—close conformance, an effective panel arrangement, and integration of the baffles and reservoir—in a single tray product.” Ex. 2043 ¶ 170. Mr. Sherman further testifies that “[t]he automotive accessories industry has also praised the close conformance of WeatherTech’s® trays to the surface of the vehicle foot well.” *Id.* ¶ 171.

Although Mr. Sherman’s testimony makes a reference to “integration of the baffles and reservoir” (Ex. 2043 ¶ 170), Yung disclosed a floor tray with integrated baffles and reservoir before the date of the invention. *See, e.g.,* Ex. 1006, Figs. 1, 3, 4; *see also* Pet. 61–62 (referencing Ex. 1006,

IPR2020-01142
Patent 8,833,834 B2

Fig. 1, in asserting the same). Because the integration of the baffles and reservoir already existed, “industry praise of what was clearly rendered obvious by published references is not a persuasive secondary consideration.” *Bayer Healthcare Pharms., Inc. v. Watson Pharms., Inc.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013).

We find that the industry praise cited by Mr. Sherman and Patent Owner relates specifically to the “close conformance of WeatherTech’s® trays to the surface of the vehicle foot well” (Ex. 2043 ¶ 171), a feature not recited in claims 13–15. The evidence supports this finding. *See, e.g.*, Ex. 2054, 1 (describing WeatherTech products to “fit every contour of the floor as precisely as you can imagine” and “stay in place like part of the floor”); *see also* Ex. 2055, 1–2 (“Digital laser measurements of interior surfaces offer a consistently perfect fit” that “accurately and completely lines up to fit all vehicles” and “give[s] absolute protection of your vehicle.”). Mr. Sherman testifies, “In my opinion, this praise for the close conformance of the WeatherTech floor trays—which embody the conformance of the ’186 and ’834 claims—provides additional evidence that the invention claimed in the ’186 and ’834 Patents would not have been obvious.” Ex. 2043 ¶ 171.

As explained above, the industry praise of the WeatherTech floor trays is due to the close-conformity of the trays in the foot well, a feature not recited in claims 13–15.

(5) *Competitor Licenses*

Evidence that competitors or customers have licensed a patent may provide probative and cogent evidence of non-obviousness of the claims at

IPR2020-01142
Patent 8,833,834 B2

issue. *Institut Pasteur & Universite Pierre et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013). Patent Owner cites to two settlement agreements with patent licenses and submits that “[t]his licensing activity favors a finding of nonobviousness.” PO Resp. 80.

Petitioner argues that “[l]icenses intended to resolve litigation are not persuasive evidence of nonobviousness without affirmative evidence that the license has a nexus to the merits of the claimed invention.” Pet. Reply 28 (citing *In re Cree, Inc.*, 818 F.3d 694, 703 (Fed. Circ. 2016)).

Although Patent Owner submitted into evidence two settlement agreements (Exs. 2050, 2051), we agree with Petitioner that Patent Owner fails to provide affirmative evidence that the settlement agreements, which include patent licenses, have a nexus to the merits of the claimed invention. See Pet. Reply 28. The settlement agreements license multiple patents, not just the ’834 patent, and broadly include any patent that issues from U.S. Application No. 10/976,441. Ex. 2050 §§ 1.3, 1.8; Ex. 2051 §§ 2, 6. No information is provided about critical details of the licenses—such as the relative contributions of each of the patents, let alone specific claims, in the portfolio to the value of the licenses—such that we could discern whether the licensee took the license “out of recognition and acceptance of the subject matter” of claims 13–15 of the ’834 patent, or something else. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); see also *Unified Patents, LLC v. Syncloud Technologies, LLC*, 2021 WL 841367, *17 (PTAB March 5, 2021).

Accordingly, we do not find Patent Owner’s license agreement evidence persuasive in establishing nonobviousness.

IPR2020-01142

Patent 8,833,834 B2

(6) *Failure of others*

In the Patent Owner Sur-Reply, Patent Owner argues, “There is evidence of a new secondary consideration—failure of others.

Mr. Sherman’s company tried and failed to use a CMM to scan a footwell and produce a custom made floor tray.” PO Sur-Reply 41 (citing Ex. 1047, 166:13–167:16 (Sherman deposition)).

Patent Owner’s *Sur-Reply* argument pertaining to “failure of others” is untimely. PO Sur-Reply 41. “Patent Owner is cautioned that any arguments for patentability not raised in the response may be deemed waived.”

Paper 11, 8; *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016) (holding that an argument not presented in a patent owner’s response is waived); *Dell Inc. v. Accelaron, LLC*, 884 F.3d 1364, 1369 (Fed. Cir. 2018) (holding that the Board was not obligated to consider an “untimely argument”). Because Patent Owner did not rely upon *failure of others* in its Response (*see* PO Resp. 70–80), Patent Owner has waived that argument and we do not consider it further in our analysis.

(7) *Summary of Secondary Considerations (claims 13–15)*⁷

For the reasons discussed above, we do not find a nexus between Patent Owner’s evidence of nonobviousness and claims 13–15. We, therefore, accord little to no weight to this evidence in assessing the obviousness of these claims.

⁷ *See supra* n.5 (addressing the secondary considerations of claims 13–15 collectively for brevity).

IPR2020-01142

Patent 8,833,834 B2

j) Summary of Independent Claim 13

After considering the evidence and arguments of both parties, and for the reasons set forth above, we agree with Petitioner and determine that Petitioner has met its burden of showing, by a preponderance of the evidence, that independent claim 13 of the '834 patent is unpatentable over Rabbe, Yung, and Gruenwald.

5. Dependent Claim 14

Claim 14 depends from claim 13 and further recites,

wherein the central panel has a forward region with an upward facing general surface and a rearward region, the reservoir portion being disposed in the rearward region, the general surface of reservoir portion being disposed below the general surface of the forward region.

Ex. 1001, 24:4–9.

In addressing claim 14, Petitioner relies on Yung's teachings, submitting an annotated version of Yung's Figures 1 and 3 (Pet. 65), which we reproduce, below:

IPR2020-01142

Patent 8,833,834 B2

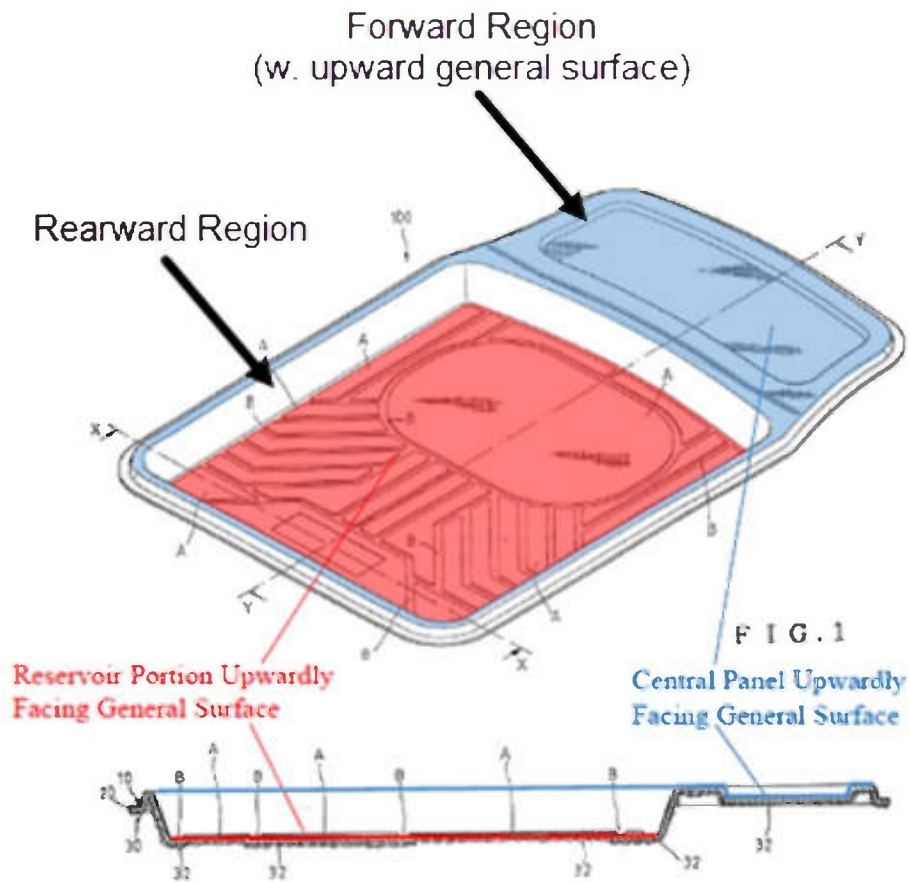


FIG. 3

EX1006, FIGs. 1, 3 (annotated).

According to Petitioner, Figures 1 and 3 depict a “shallow plate-shaped object” in the forward region (shown in blue) and a “plate shaped object” in the rearward region (shown in red). Pet. 65 (emphasis omitted). Petitioner submits that the forward plate-shaped object provides an area for people to step on. *Id.*

Yung discloses that

As figures shown that the mat (**100**) of this invention is a plate-shaped object, and there is a shallow plate-shaped object at the front flange of the mat. *The plate-shaped object and the*

IPR2020-01142

Patent 8,833,834 B2

shallow plate-shaped object are for people to step on. The mat can be placed freely depends on the locations of the front seat and rear seat.

Ex. 1006 ¶ 12 (second emphasis added).

In combining Rabbe with Yung, Petitioner reasons that “a POSA would have been motivated to include the ‘shallow plate-shaped object’ (forward region) to provide an area ‘for people to step on.’” Pet. 66 (citation omitted).

Patent Owner does not present additional arguments contesting Petitioner’s position as to claim 14. *See generally* PO Resp.; *see also supra* § II.D.4.i.7 (“we do not find Patent Owner’s evidence of nonobviousness persuasive with respect to claims 13–15.”).

We are persuaded by Petitioner’s argument and evidence and find that Petitioner has established by a preponderance of the evidence that Rabbe as modified based on Yung’s teachings satisfies the limitations recited in claim 14. Petitioner has met its burden of showing, by a preponderance of the evidence, that claim 14 of the ’834 patent is unpatentable over Rabbe, Yung, and Gruenwald.

6. *Dependent Claim 15*

Claim 15 depends from claim 13 and further recites,

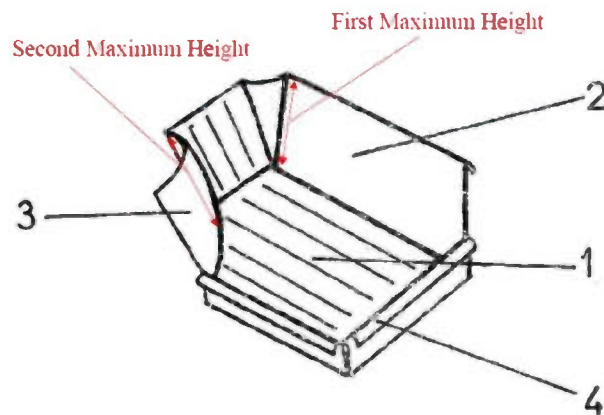
wherein the first and third tray walls each have an upper margin, a first maximum height of the first tray wall measured from the central panel to the upper margin of the first tray wall, a second maximum height of the third tray wall measured from the central panel to the upper margin of the third tray wall, a forward end of the first tray wall joined to the second tray wall throughout the first maximum height, a forward end of the third tray wall joined to the second tray wall throughout the second maximum height.

IPR2020-01142

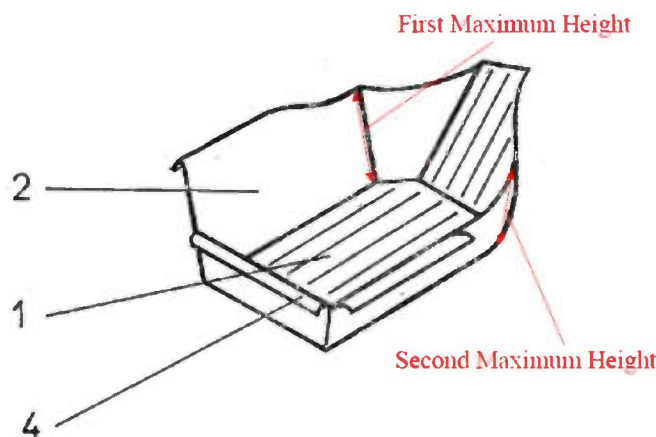
Patent 8,833,834 B2

Ex. 1001, 24:10–19.

In challenging claim 15, Petitioner submits that the “Rabbe-Yung-Gruenwald combination renders” claim 15 obvious. Pet. 57 (referencing in part Petitioner’s challenge of claim 4). Petitioner further submits that Rabbe’s “triangularly-shaped and trapezoid-shaped portions in Figures 3 and 4 of Rabbe” disclose the claimed features. *See id.* at 55 (citing in part Ex. 1003 ¶ 170). Dr. Koch submits an annotated version of Rabbe’s Figures 3 and 4 (Ex. 1003 ¶ 169) to illustrate these assertions, a copy of which we reproduce below:



EX1005, FIG. 3 (annotated).



EX1005, FIG. 4 (annotated).

As shown in the above figures, and according to Dr. Koch,

IPR2020-01142
Patent 8,833,834 B2

Rabbe discloses that the first tray wall has a first maximum height between the central panel and the upper margin, the third tray wall has a second maximum height between the central panel and the upper margin, a forward end of the first tray wall is joined to the second tray wall throughout the first maximum height, and a forward end of the third tray wall is joined to the second tray wall throughout the second maximum height.

Ex. 1003 ¶ 170.

Patent Owner does not present additional arguments contesting Petitioner's position as to claim 15. *See generally* PO Resp.; *see also supra* § II.D.4.i.7 (“we do not find Patent Owner's evidence of nonobviousness persuasive with respect to claims 13–15.”).

We are persuaded by Petitioner's argument and evidence and find that Petitioner has established by a preponderance of the evidence that Rabbe discloses the limitations recited in claim 15. Petitioner has met its burden of showing, by a preponderance of the evidence, that claim 15 of the '834 patent is unpatentable over Rabbe, Yung, and Gruenwald.

7. *Independent Claims 1, 5, and 9*

a) *“One-Eighth Inch” Conformance Limitations*

Independent claim 1 requires “at least 90 percent of that one-third of the outer surfaces of the first, second and third tray walls which are closest to the respective top margins of the first, second or third tray walls being within one-eighth of an inch of the respective foot well walls.” Ex. 1001, 20:36–40. Independent claims 5 and 9 recite similar limitations by requiring at least “90 percent of [] one-half of the outer surfaces” (claim 5) or “50 percent of the outer surfaces” (claim 9) of the first, second, and third tray

IPR2020-01142
Patent 8,833,834 B2

walls to be “within one-eighth of an inch of the respective foot well walls.”
See id. at 21:30–35 (claim 5), 22:26–28 (claim 9).

Notably, the prosecuting patent examiner allowed the claims because the prior art before the Examiner (not including Rabbe) “fail[ed] to disclose or render obvious at least 90 percent of that one-third of the outer surfaces of the first, second and third tray walls which are closest to the respective top margins of the first, second or third tray walls being within one-eighth of an inch of the respective foot well walls.” Ex. 1002, 42 (Reasons for Allowance).

(1) *Petitioner’s Position*

Petitioner submits that Rabbe discloses these limitations. *See* Pet. 45 (citing Ex. 1003 ¶ 149); *see also id.* at 53–54 (“The analysis for Claim 1 applies to Claim 5”); *see also id.* at 54 (“The analysis from Claim 1 applies to Claim 9”). In support of these assertions, Petitioner cites to Rabbe’s disclosure on page 1, lines 1–6. *Id.* at 46 (citing Ex. 1005, 1:1–6). We reproduce that portion of Rabbe, below:

The purpose of the present invention is the protection of the floors and side walls of vehicle interiors; it concerns automobile floor mats, in the form of a tray, *the sides of which perfectly conform to the contour of the vehicle interior at the feet of the driver*, those of front and rear passengers as well as front or rear trunks, for the purpose of ensuring effective protection against any soiling.

Ex. 1005, 1:1–6 (emphasis added). Dr. Koch testifies that “Rabbe discloses that the *sides of the floor tray ‘perfectly conform to the contour of the vehicle interior at the feet of the driver.’*” Ex. 1003 ¶ 149 (quoting Ex. 1005, 1:1–6) (emphasis added).

IPR2020-01142
Patent 8,833,834 B2

Throughout the Petition, Petitioner submits that “a POSA would have understood that Rabbe’s ‘perfect’ conformation and the panels being ‘presse[d] . . . against the side walls of the vehicle’ discloses or at least suggests” the claimed limitations. *See, e.g.*, Pet. 54 (alterations in original).

As a reminder, Rabbe is an English-language translation of French Patent Document FR 2547252. Ex. 1005, 1.

(2) *Parties’ Dispute*

Patent Owner argues that “Petitioner’s obviousness challenge is based on [a] deeply flawed English translation of Rabbe” and that “Rabbe conveys an entirely different meaning than Petitioner alleged and defeats Petitioner’s obviousness arguments.” PO Resp. 13. Patent Owner argues that Petitioner’s translation that the “*sides*” “perfectly conform to the contour of the vehicle interior” is wrong, and the correct translation is that the “*flanges*” “perfectly conform to the contour of the vehicle interior.” *See id.* at 14–15 (emphasis altered). To support this position, Patent Owner submits a portion of the cross-examination testimony of Petitioner’s translator, asserting that the “translator admitted his translation was incorrect.” *Id.* at 15 (citing Ex. 2040, 32:7–16). The cited portion of the cross-examination is as follows:

Q. Okay. Do you believe that you should have translated “rebords” to mean “flanges” there, consistent with your other four translations of the word “rebords”?

A. I do.

Q. Excuse me?

MR. WALTERS: Sorry. I just wanted to get my objection on the record. You can answer, Mr. Dawson.

IPR2020-01142
Patent 8,833,834 B2

A. Yes. I do believe it should have been “flanges” to be consistent.

Ex. 2040, 32:7–16.

Based on the translation error, Patent Owner submits that “Rabbe does not disclose that the *sides* of its floor tray, which Petitioner equates to the claimed first and second tray walls, ‘perfectly conform to the contour of the vehicle interior at the feet of the driver’ as Petitioner contends.” PO Resp. 15 (emphasis added).

Petitioner does not dispute Patent Owner’s assertion. *See* Pet. Reply 4. Instead of disputing Patent Owner’s assertion that Petitioner’s translator erred, Petitioner submits that “[e]ven under [Patent Owner’s] translation, Rabbe discloses the conformance limitations.” *Id.* at 4. Petitioner explains that “[o]ther portions of the original Rabbe translation . . . show that Rabbe discloses the conformance limitations.” *Id.* (citing Ex. 1041 ¶¶ 20–22). In particular, Petitioner submits the following disclosure within Rabbe:

(1) Rabbe’s raised edges are “presse[d] . . . against the walls,” “conform to the topography of the interior and do not change the aesthetics desired by the manufacturer”;

(2) Rabbe’s “raised edges (2) of unequal heights conform[] to the interior contour of the vehicle”;

(3) Rabbe’s protective tray “conforms to the contour of the vehicle interior”; and

(4) The “thinness of the material used only encroaches on a few millimeters of the space designed by the vehicle manufacturer, and thus does not change the desired aesthetic aspect.”

Id. at 5 (citing Ex. 1005, Abstr. 2:7–9, 1:16–20, 2:24–26) (alterations in original). Petitioner explains that “because Rabbe’s ‘raised edges’ are

IPR2020-01142
Patent 8,833,834 B2

‘presse[d] . . . against the walls,’ a POSA would have understood Rabbe’s tray walls have substantial contact with the vehicle footwell.” *Id.* (citing in part Ex. 1041 ¶ 22) (alterations in original). Petitioner further explains that “because the floor tray ‘only encroaches on a few millimeters of the space’ in the footwell, the material thickness and gap between the material and the footwell would have to be at most a few millimeters.” *Id.* at 5–6 (citing Ex. 1005, 1:24–26; Ex. 1041 ¶¶ 22–25). Based on these disclosures, Petitioner submits that “Rabbe expressly teaches that its tray walls conform to the footwell such that any gap would be less than 1/8 inch.” *Id.* at 6 (Ex. 1041 ¶ 23).

(3) Analysis

We agree with Patent Owner.

Turning to Petitioner’s challenge, we find that Petitioner’s initial translation of Rabbe was incorrect, and that Rabbe *does not disclose* the *sides* of its tray as “perfectly conform[ing] to the contour of the vehicle interior.” Without this disclosure, we do not find Rabbe as satisfying the precise conformance limitations required in independent claims 1, 5, and 9.

Independent claim 1 requires a conformance of “at least 90 percent of [] one-third of the outer surfaces of the first, second and third tray walls which are closest to the respective top margins of the first, second or third tray walls being within one-eighth of an inch of the respective foot well walls.” Ex. 1001, 20:36–60. Independent claims 5 and 9 recite similar limitations. *See id.* at 21:30–35 (claim 5), 22:26–28 (claim 9). Rabbe, properly translated, does not disclose a tray with *sidewalls* that meet these specific conformance limitations. Instead, and as Petitioner acknowledges, Rabbe discloses a tray with *raised edges* that are pressed against the walls.

IPR2020-01142
Patent 8,833,834 B2

Pet. Reply 5 (citing Ex. 1005, Abstr.). Even if the *raised edges* of Rabbe's tray conform to the interior of the vehicle, this does not satisfy the specific conformance limitations of the first, second, and third tray walls required by the claims. We agree with Patent Owner that "Rabbe's references to raised edges (and in other places, flanges or rims), refer to the *upper perimeter of the tray*," not the first, second, or third tray walls. See PO Sur-Reply 16 (emphasis altered); see also *In re Robinson*, 173 F.2d 356, 358 (CCPA 1949) ("terms must be translated in view of the context in which they are used"). As shown in Rabbe's Figures 3 and 4 (annotated versions reproduced below), the rear wall and the two side walls of Rabbe's tray include a flange (denoted by reference numeral 4) positioned at the upper perimeter of the tray walls.

To reiterate, although Rabbe discloses that the "*flanges*" "perfectly conform to the contour of the vehicle interior," Rabbe does not explicitly disclose the "*sides*" to "perfectly conform to the contour of the vehicle interior." PO Resp. 14–15; see also Ex. 2040, 32:7–16 (Petitioner's translator acknowledging during cross-examination that Rabbe, *when properly translated*, states that the "flanges," not "sides," "perfectly conform to the contour of the vehicle interior").

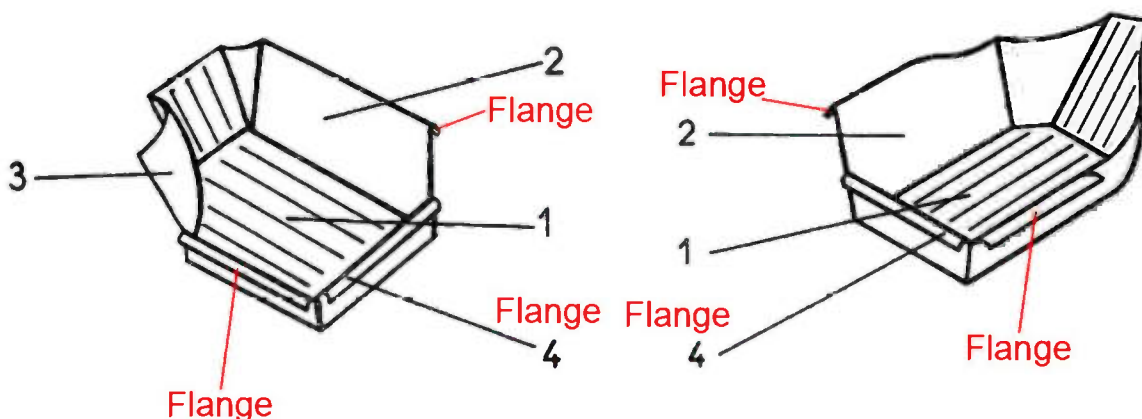
Having weighed the competing testimony and evidence, and after reading the parties' translations in view of the context of the Rabbe disclosure (*Robinson*, 173 F.2d at 358), we credit Mr. Sherman's testimony (Ex. 2043) and Dr. Osswald's testimony (Ex. 2041) that only Rabbe's flanges 4 perfectly conform to the vehicle interior. In particular, we credit Mr. Sherman's testimony that "a POSITA would not understand Petitioner's translation of Rabbe to disclose, teach, or suggest the conformance

IPR2020-01142

Patent 8,833,834 B2

limitations of the . . . '834 Patent[]." Ex. 2043 ¶ 99. We further credit Mr. Sherman's testimony that "[a] POSITA would have understood that Rabbe's tray is 'retained' in the vehicle interior by the *rims* [or flanges] pressing against the vehicle interior." *Id.* ¶ 106 (citing Ex. 2024, Abstr., 12:7) (emphasis added). In our view, Mr. Sherman's testimony is supported by Petitioner's own translation of Rabbe, which, according to Petitioner, "discloses that '[t]he rigidity of the material used presses the unit against the side walls of the vehicle[']'" and that "'the rigidity presses the raised edges against the walls.'" Pet. 46 (quoting Ex. 1005, 1:19–20, Abstr.). When Rabbe's outwardly-protruding flanges 4 (as shown in Rabbe's Figures 3 and 4) are viewed in light of this translation, Patent Owner's testimony is more credible.

To illustrate these points, we reproduce Dr. Osswald's annotated version of Rabbe's Figures 3, and 4, below:



Dr. Osswald submits annotated versions of Rabbe's Figures 3 (above left) and 4 (above right). Ex. 2041 ¶ 114. We credit Dr. Osswald's testimony that "[a]s can be seen from Figures 3 and 4 of Rabbe above, flanges 4 are disposed on the outer area of the upper perimeter of Rabbe's tray such that

IPR2020-01142
Patent 8,833,834 B2

flanges 4, not the sides, would contact the walls of the vehicle foot well.” Id.

¶ 115 (emphasis added). We further credit Dr. Osswald’s testimony that

A POSITA would have recognized that the arrangement of flanges in Rabbe’s tray would prevent the reinforced sides of the tray from “closely conforming” to the sides of the vehicle foot well . . . with specified portions being “within one-eighth of an inch” of respective foot well walls as required by the ’834 Patent. Specifically, a POSITA would understand that when a flange or retentive shape 4 contacts the foot well wall, the retentive shape pushes the side panel *away* from the adjacent foot well and prevents that side panel from closely conforming to the surface of the vehicle foot well walls as required by . . . the ’834 Patent.

Id.

We further disagree with Petitioner’s position that because the floor tray “only encroaches on a few millimeters of the space” in the footwell, “the material thickness and gap between the material and the footwell would have to be at most a few millimeters.” Pet. Reply 5–6 (emphasis omitted). We do not find Rabbe’s disclosure of “a few millimeters” to refer specifically to the distance separating the tray walls from the vehicle’s foot well, thus satisfying the claimed conformance limitations. When reviewing the translated sentence in full context (*Robinson*, 173 F.2d at 358), Rabbe discloses that the “*thinness of the material used only encroaches on a few millimeters of the space* designed by the vehicle manufacture, and thus does not change the desired aesthetic aspect.” Ex. 1004, 1:24–26 (emphasis added). Although we find this particular sentence to be somewhat ambiguous, we are more inclined to find the disclosure of “a few millimeters” to refer to the “thinness of the material,” rather than the gap between the floor tray’s walls and the foot well. *See* PO Sur-Reply 15 (arguing the same). Even construing this sentence in a light most favorable

IPR2020-01142
Patent 8,833,834 B2

to Petitioner, however, we find that it fails to satisfy the precise language recited in limitation 1(h).

Accordingly, we do not find Rabbe's reference of a floor tray that is only "a few millimeters" in thickness, thereby "only encroach[ing] a few millimeters of the space," as satisfying the precise requirement that "at least 90 percent of that one-third of the outer surfaces of the first, second and third tray walls which are closest to the respective top margins of the first, second or third tray walls being within one-eighth of an inch of the respective foot well walls." Ex. 1001, 20:36–40 (claim 1); *see also id.* at 21:30–35 (claim 5, reciting a similar limitation), 22:26–28 (claim 9, reciting a similar limitation).

Petitioner also argues that Patent Owner "has not established any criticality to the 1/8 inch tolerance limitations in claims 1, 5, and 9, and it *would have been obvious* to optimize the tray to fit as closely as desired." Pet. Reply 6 n.4 (citing Ex. 1003 ¶ 163; Ex. 1041 ¶ 24) (emphasis added).

Petitioner's obviousness argument is untimely.

In the Petition, Petitioner *does not* reason that it would have been obvious to modify Rabbe's floor tray to meet the conformance limitations. *See, e.g.,* Pet. 46 ("A POSA would have understood that Rabbe's 'perfect' conformation to the vehicle interior was well within one-eighth of an inch because 'perfect' conformity would have left little or no space between the vehicle foot well and the outer surface of the floor tray."); *see also, e.g., id.* at 45 ("Rabbe . . . discloses 1[h]"). Despite Dr. Koch's *supplemental* testimony that "[o]ptimizing a tray until it fits as closely as desired would have been obvious, as I explained in my original declaration," we disagree with Dr. Koch that he "explained [this] in [his] original declaration."

IPR2020-01142
Patent 8,833,834 B2

Ex. 1041 ¶ 24 (citing Ex. 1003 ¶ 163). To illustrate, we reproduce the *entirety* of the cited portion of Dr. Koch’s original testimony, below:

Additionally, given the relatively low cost of thermoforming molds, a POSA would have had the ability to make several molds for different vehicle interiors (or different areas of a vehicle’s interior), and to also adjust the moldmaking process to achieve even greater conformity with the vehicle interior. Indeed, the inventor in Rabbe achieved a “perfect” level of conformity in a manner that “does not change the desired aesthetic aspect” of the vehicle as designed by the manufacturer.

Ex. 1003 ¶ 163.

We find nothing in the Petition (Pet. 45–46) or in Dr. Koch’s original testimony (Ex. 1003 ¶ 163) to support Petitioner’s (and Dr. Koch’s) *new position* that “it would have been obvious to optimize the tray to fit as closely as desired.” Pet. Reply 6 n.4 (citing Ex. 1003 ¶ 163; Ex. 1041 ¶ 24). Petitioner’s Reply is not the place to raise new arguments or evidence. *See* 37 C.F.R. § 42.23(b) (“A reply may only respond to arguments raised in the corresponding opposition or patent owner’s response”); *see also Finnigan Corp. v. Int’l Trade Comm’n*, 180 F.3d 1354, 1363 (Fed. Cir. 1999) (“A party’s argument should not be a moving target.”). Accordingly, we do not consider Petitioner’s new theory of obviousness as it is outside the scope of a proper reply under Rule 42.23(b).

For the foregoing reasons, Petitioner failed to prove by a preponderance of the evidence that independent claims 1, 5, and 9 satisfy the recited tray walls being within one-eighth of an inch of their respective foot well walls.

IPR2020-01142

Patent 8,833,834 B2

b) Summary of Independent Claims 1, 5, and 9

Weighing all the evidence presented by the parties, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claims 1, 5, and 9 would have been obvious over Rabbe, Yung, and Gruenwald.

8. Dependent Claims 4, 8, and 12

Claims 4, 8, and 12 depend from claims 1, 5, and 9, respectively. Ex. 1001, 20:57–22:55. Petitioner’s arguments with respect to these claims do not overcome the deficiencies in Petitioner’s challenge addressed above with respect to claims 1, 5, and 9. *See* Pet. 55–57 (relying on the same analysis of independent claims 1, 5, and 9 when addressing the features of dependent claims 4, 8, and 12). Accordingly, Petitioner has not demonstrated by a preponderance of the evidence that claims 4, 8, and 12 would have been obvious over Rabbe, Yung, and Gruenwald.

9. Summary of Ground 1

Petitioner has not demonstrated by a preponderance of the evidence that claims 1, 4, 5, 8, 9, and 12 would have been obvious over Rabbe, Yung, and Gruenwald. Petitioner has demonstrated, however, that claims 13–15 would have been obvious over Rabbe, Yung, and Gruenwald.

E. Ground 2: Rabbe, Yung, Gruenwald, Sturtevant

Petitioner contends that claims 2, 3, 6, 7, 10, and 11 are unpatentable as obvious over Rabbe, Yung, Gruenwald, and Sturtevant. Pet. 66.

Claims 2, 3, 6, 7, 10, and 11 depend from one of claims 1, 5, and 9. *See* Ex. 1001, 20:41–22:46. In addressing the limitations of these dependent

IPR2020-01142
Patent 8,833,834 B2

claims, Petitioner relies on the additional teachings of Sturtevant, but otherwise relies on the same analysis in addressing the limitations of independent claims 1, 5, and 9. *See* Pet. 66–82.

For the same reasons Petitioner has not demonstrated by a preponderance of the evidence that claims 1, 5, and 9 are unpatentable, we also determine that Petitioner has not demonstrated by a preponderance of the evidence that dependent claims 2, 3, 6, 7, 10, and 11 would have been obvious over Rabbe, Yung, Gruenwald, and Sturtevant.

III. MOTION TO STRIKE

A. Introduction

With our authorization (Paper 69), Patent Owner filed a Motion to Strike (Paper 72, “Motion” or “Mot.”), in which Patent Owner seeks to strike portions of Petitioner’s Reply Brief and certain expert declarations cited therein. *See* Mot. 1. Patent Owner asserts that Petitioner submitted fifty-five new exhibits with its Reply, and “43 of Petitioner’s 55 new exhibits (78%) could have been filed with the Petition, but were not.” *Id.* Patent Owner explains that the Reply “includes improper new arguments, rationales, and theories that should be stricken because they were not presented or developed in the Petition.” *Id.* at 2. Patent Owner asks that we “strike the Reply in whole or in part and any evidence in support of arguments that are either new or incorporated by reference.” *Id.* at 15.

Petitioner opposes the Motion. Paper 74 (“Opposition” or “Opp.”). In its Opposition, Petitioner explains that “a petitioner has latitude to expand on arguments in the petition, respond to patent owner’s arguments, and show the state of the art, as [Petitioner] did here. And a petitioner may also submit

IPR2020-01142
Patent 8,833,834 B2

evidence to support these arguments and confirm obviousness, as [Petitioner] did here.” *Id.* at 5.

Patent Owner also filed a reply to the Opposition. Paper 75. In its reply to the Opposition, Patent Owner disputes Petitioner’s characterization that the arguments and evidence submitted with Petitioner’s Reply are permissible. *See id.* at 1 (“[Petitioner’s] attempts to explain away its new arguments are unavailing.”).

We deny Patent Owner’s Motion.

B. Analysis

Even if we agree with Patent Owner that Petitioner’s Reply contains new evidence and argument, “striking the entirety or a portion of a party’s brief is an exceptional remedy that the Board expects will be granted rarely.” Guide 80. Our Guide also provides that “the Board is capable of identifying new issues or belatedly presented evidence when weighing the evidence,” without granting the exceptional remedy of striking Petitioner’s Reply. *See id.*

Here, we acknowledge that at least part of Petitioner’s Reply contains untimely new argument. *See supra* § II.D.7.a.3 (quoting Pet. Reply 6 n.4). Specifically, Petitioner buried a new and untimely argument in a footnote within its Reply Brief. *See id.* In this footnote, Petitioner argued, for the first time, that “it would have been obvious to optimize the tray to fit as closely as desired.” *Id.* In that instance, we did not consider Petitioner’s belatedly-presented argument and evidence as untimely and outside the scope of a proper reply. *See id.* (citing 37 C.F.R. § 42.23(b)).

IPR2020-01142
Patent 8,833,834 B2

We further agree with Petitioner, however, that its Reply Brief includes permissible evidence and argument in response to Patent Owner's Response and to further expound upon theories raised in the Petition. *See* Opp. 3–4; *see also, e.g., supra* § II.D.4.a.3 (agreeing with Petitioner's Reply Brief explanation that “Patent Owner[’s Response] takes ‘a far-too-narrow approach to obviousness, bodily incorporating specific materials, arguing that Yung’s tri-layer structure could not be thermoformed, and alleging that Yung’s polyethylene was a foam and therefore could not be thermoformed’” (quoting Pet. Reply 11–12 (citing PO Resp. 40–42))). Indeed, our reviewing court makes clear that Petitioner “may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner.” *Anacor Pharms., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018); *see also* Opp. 3 (arguing the same). Striking Petitioner's Reply Brief in light of this permissible argument and evidence would likely invite unfavorable criticism from our reviewing court. *See, e.g., Ericsson Inc. v. Intellectual Ventures ILLC*, 901 F.3d 1374, 1381 (Fed. Cir. 2018) (vacating and remanding the Board's decision for failing to consider portions of petitioner's reply brief because the reply properly “expand[ed] the same argument made in its Petition” instead of providing a new theory); *see also* Opp. 2–3 (arguing the same).

We further note that Patent Owner filed its Sur-Reply and addressed Petitioner's Reply in its subsequent paper. *See, e.g.,* PO Sur-Reply 14 (“The Petition did not rely upon all the ‘[o]ther portions’ of Rabbe that [Petitioner] belatedly asserts satisfy the ‘substantially conforming’ limitations” (*comparing* Pet. Reply 5, *with* Pet. 36–42)). As such, Patent Owner had adequate opportunity to respond to Petitioner's Reply and any evidence cited

IPR2020-01142
Patent 8,833,834 B2

therein. *See Telefonaktiebolaget LM Ericsson v. TCL Corporation*, 941 F.3d 1341, 1345 (Fed. Cir. 2019) (“[T]he Board did not abuse its discretion in admitting the Michel Declaration, for when the challenged evidence is reasonably viewed as material, and the opponent has adequate opportunity to respond and to produce contrary evidence, the interest of justice weighs on the side of admitting the evidence.”).

For the foregoing reasons, we deny Patent Owner’s Motion to Strike in its entirety.

IV. CONCLUSION

Weighing the evidence of the disclosure of the references, the competing testimony, and the reasoning to combine the references, we determine that Petitioner has shown by a preponderance of the evidence that claims 13–15 of the ’834 patent are unpatentable. Petitioner has not shown that claims 1–12 of the ’834 patent are unpatentable.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 4, 5, 8, 9, 12–15	103	Rabbe, Yung, Gruenwald	13–15	1, 4, 5, 8, 9, 12
2, 3, 6, 7, 10, 11	103	Rabbe, Yung, Gruenwald, Sturtevant		2, 3, 6, 7, 10, 11
Overall Outcome			13–15	1–12

IPR2020-01142

Patent 8,833,834 B2

V. ORDER

Accordingly, it is:

ORDERED that claims 13–15 of the '834 patent have been shown to be unpatentable;

FURTHER ORDERED that claims 1–12 of the '834 patent have not been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Strike (Paper 74) is denied; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.⁸

⁸ 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).

IPR2020-01142
Patent 8,833,834 B2

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