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Paper 47
Entered: January 30, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARCTIC CAT, INC.,
Petitioner,

v.

POLARIS INDUSTRIES INC.,
Patent Owner.

Case IPR2015-01781
Patent 8,827,028 B2

Before KARL D. EASTHOM, PHILLIP J. KAUFFMAN, and MICHAEL W. KIM, *Administrative Patent Judges.*

KAUFFMAN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION

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

I. INTRODUCTION

A. PROCEDURAL OVERVIEW

Arctic Cat, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 24–36, 38, 41, 42, 45, 46, 88–97, and 99–101 of U.S. Patent No. 8,827,028 B2 (Ex. 1002, "the '028 patent"). Pet. 1. Polaris Industries Inc. ("Patent Owner") filed a Preliminary Response (Paper 6, "Prelim. Resp.") to the Petition. We instituted an *inter partes* review of claims 88 and 90–101. Paper 7, "Dec."

Subsequently, Patent Owner filed a Patent Owner Response (Paper 19, "PO Resp."), and Petitioner filed a Reply (Paper 30, "Pet. Reply").[1]

Patent Owner's request for authorization to file a Motion to Strike and related follow-on actions, as well as each party's Motion to Seal, are discussed in the *Preliminary Matters* Section.

Patent Owner submitted a Motion for Observations Regarding Cross Examination of a Reply Witness, and Petitioner submitted a response. Papers 38, 43, respectively. This information was considered in our analysis.[2]

Patent Owner did not file a motion to amend.

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[1] A redacted public versions of Patent Owner's Response is filed as Paper 20.

[2] The majority of the information presented in the Motion for Observations deals with the relationship between a "pair of . . . seating surfaces" and a "front drive shaft" as recited in the claims. This information is not meaningful given our analysis of that relationship below.

Oral hearing was held on Monday, October 3, 2016, and a transcript of that hearing is included in the record.[3] Paper 46 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6(c). This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 88 and 90–101 of the '028 patent are unpatentable.

B. RELATED PROCEEDINGS

The parties indicate that the '028 patent is at issue in *Polaris Industries Inc. v. Arctic Cat Inc.*, No. 1:14-cv-3412 (D. Minn. 2014) ("the related litigation"). Pet. 1; Paper 5, 2.

This proceeding is part of a family of cases between these parties. The '028 patent is also the subject of *inter partes* review 2015-01783. Pet. 1; Paper 5, 2. U.S. Patent 8,746,719 B2, which is not related via continuity to the '028 patent, is the subject of *inter partes* reviews 2015-01788 ("the '1788 IPR") and 2015-01789. Previously, U.S. Patent No. 8,596,405 B2, a patent issuing from a continuation application of the application that became the '028 patent, was the subject of *inter partes* review 2014-01427 ("the '1427 IPR").[4] In the '1427 IPR, the Board held that Petitioner had demonstrated that claims 1–38 are unpatentable. *Arctic Cat, Inc. v. Polaris Indus. Inc.*, Case No. IPR2014-01427 (PTAB Feb. 4, 2016) (Paper 58); *see*

[3] The hearing was held in conjunction with the hearing for IPR2015-01783, IPR2015-01788, and IPR2015-01789, and a single transcript was produced.

[4] *See* Ex. 1002 (21) (application No. 11/494,891); '1427 IPR, Ex. 1002 (63).

also ’1427 IPR, Paper 66 (denying Request for Rehearing);[5] ’1427 IPR, Paper 67 (appealing the Final Written Decision to the Court of Appeals for the Federal Circuit).

A significant difference between this proceeding and *inter partes* review 2015-01783 is that Patent Owner presents secondary considerations in this proceeding.

II. PRELIMINARY MATTERS

A. SCOPE OF REPLY AND INCORPORATION

Patent Owner requested a conference seeking authorization to file a Motion to Strike portions of Petitioner’s Reply. *See* Paper 34 (order regarding that call). We did not authorize filing a Motion to Strike, but issued an order authorizing Patent Owner to file a two-page paper in the form of a list providing location and a concise description of (1) that portion of Petitioner’s Reply that Patent Owner contends improperly incorporates by reference, and (2) that portion of Petitioner’s Reply that allegedly includes a rationale that was not asserted in the Petition.[6] Paper 34, 2–3. Patent Owner requested clarification of that order, asking if the alternative request to file a sur-reply and expert testimony was denied. *See* Paper 35 (clarification order); Ex. 3004 (email request for clarification). We clarified by expressly denying the request to file a sur-reply and expert testimony, as was implied

[5] The Final Written Decision in the ’1427 IPR can be found at Exhibit 1024, subsequently referred to as “’1427 IPR, Paper 58.”

[6] This order also authorized a response by Petitioner.

in the previous order. Paper 35. As authorized, Patent Owner submitted a list, and Petitioner submitted a response. Papers 36, 41, respectively.

Patent Owner contends that three arguments in Petitioner's Reply improperly incorporate large portions of expert testimony by reference. Paper 36, 2.[7] The identified arguments follow:

> *1. "Polaris's expert (Mr. Jarosz) applied an invalid analytical framework to his analysis. (Id.*[8] *at ¶¶ 51-87, 132-40.)." (quoting Pet. Reply 25).*
>
> *2. "[T]he claims are not limited to a vehicle requiring the attributes Polaris argues contributed to the RZR®'s alleged commercial success. (AC1033 at ¶ 89; see also ¶¶ 93-131, 141.)" (quoting Pet. Reply 26).*
>
> *3. "Under nearly identical facts concerning a related patent, the Board previously found Polaris failed to establish a nexus. (See IPR2014-01427, Paper 58 at 35; see also AC1033 at ¶¶ 88-92.)" (quoting Pet. Reply 25–26).*

Patent Owner contends that each identified sentence is conclusory, and incorporates large amounts of information ((46 paragraphs or 33 pages), (41 paragraphs or 29 pages), and (5 paragraphs or 4 pages), respectively). Paper 36, 2.

Petitioner responds that each identified sentence "properly points to underlying testimony/facts that confirms the contention made in the quoted sentence, but the quoted sentence does not require incorporation of text from any of the cited paragraph numbers." Paper 41, 1. Regarding the second

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[7] Page 3 of this Paper deals with issues in IPR2015-01788 and IPR2015-01789 and does not pertain directly to this proceeding.

[8] This "*Id.*" refers to "AC1033" which is Exhibit 1033 (the Declaration of Mr. Bakewell.

and third items listed above, Petitioner adds that the "*see also*" citations do not incorporate text from any of the cited paragraphs into their Reply. Petitioner also contends that Patent Owner cites Declarations in a similar manner in Patent Owner's Response. *Id.* at 1–2.[9]

We agree with Petitioner that Patent Owner cites information in a similar manner. In our analysis below, we consider the argument and evidence of each party to the extent that it is explained sufficiently in the corresponding brief. *See* 37 C.F.R. § 42.6(a)(3) ("Arguments must not be incorporated by reference from one document into another document."); 37 C.F.R. § 42.22(a)(2) (requiring motions to include a detailed explanation of the significance of evidence); 37 C.F.R. § 42.23 (applying the content requirements of motions to oppositions and replies). These rules are consistent with preventing circumvention of page and word count limits. 37 C.F.R. § 42.24.

B. MOTIONS TO SEAL

Patent Owner and Petitioner each filed a Motion to Seal. Papers 18, 29, respectively.

There is a strong public policy in favor of making information filed in an *inter partes* review open to the public, especially because the proceeding

[9] Providing as examples: Paper 20, 25 (a single-sentence contention followed by a citation to "PO2031 ¶¶ 48–72," which refers to 25 paragraphs (10 pages) of argument); 30 (a single-sentence contention followed by a citation to "PO2013 ¶ 33–35, 38, 63–65, 70–72, 101–102," which refers to 14 paragraphs (9 pages) of argument); 68 (a single-sentence contention followed by a citation to "PO2031 ¶ 33; *see also* ¶¶ 64, 72, 87, 89, 92–98, 100, 102," which refers to 14 paragraphs (16 pages) of argument).

determines the patentability of claims in an issued patent and, therefore, affects the rights of the public. *See Garmin Int'l v. Garmin Speed Techs., LLC*, Case IPR2012-00001 (PTAB Mar. 14, 2013) (Paper 34). Under 35 U.S.C. § 316(a)(1) and 37 C.F.R. § 42.14, the default rule is that all papers filed in an *inter partes* review are open and available for access by the public; a party, however, may file a concurrent motion to seal and the information at issue is sealed pending the outcome of the motion. It is, however, only "confidential information" that is protected from disclosure. 35 U.S.C. § 316(a)(7); *see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,760 (Aug. 14, 2012). The standard for granting a motion to seal is "for good cause." 37 C.F.R. § 42.54(a). The party moving to seal bears the burden of proof in showing entitlement to the requested relief, and must explain why the information sought to be sealed constitutes confidential information. 37 C.F.R. § 42.20(c).

In reviewing the underlying documents that are sought to be sealed, we conclude that they may contain confidential information. Accordingly, we are persuaded that good cause exists to have some of the documents remain under seal. In that respect, the Motions to Seal are granted, except for information that is discussed in or relied on by this Decision. With regard to such information, pertinent to substantive patentability analysis, we discern no reason to shield them from the public. The parties have shown no good cause to seal such information.

The Office Patent Trial Practice Guide provides:

> *Expungement of Confidential Information*: Confidential information that is subject to a protective order ordinarily would become public 45 days after denial of a petition to institute a trial or 45 days after final judgment in a trial. There is an expectation

> that information will be made public where the existence of the information is referred to in a decision to grant or deny a request to institute a review or is identified in a final written decision following a trial. A party seeking to maintain the confidentiality of information, however, may file a motion to expunge the information from the record prior to the information becoming public. § 42.56. The rule balances the needs of the parties to submit confidential information with the public interest in maintaining a complete and understandable file history for public notice purposes. The rule encourages parties to redact sensitive information, where possible, rather than seeking to seal entire documents.

77 Fed. Reg. at 48766.

Consequently, 45 days from entry of this decision, all information subject to a protective order will be made public by default. In the interim, a party seeking to maintain confidentiality of information that was not relied upon in this decision, may file a motion to expunge that information. *See* 37 C.F.R. § 42.56.

III. CLAIMED SUBJECT MATTER

A. INTRODUCTION TO THE SUBJECT MATTER

The ’028 patent relates to trail-compliant side-by-side all-terrain vehicles (ATVs) having at least a pair of laterally spaced apart seating surfaces. Ex. 1002, 1:5–8.

As background, the ’028 patent describes that recreational interest in ATVs has increased. *Id.* at 1:13–18. In particular, ATVs in which the driver and passenger are seated beside each other on laterally spaced-apart seats, so called “side-by-side” ATVs, have grown in popularity because such seating permits the passenger to share the driver’s viewpoint and riding experience. *Id.* at 1:18–25. Most side-by-side ATVs are at least 54 inches wide, and

consequently their use on most state and national park trails is unacceptable or impractical because those parks have an established maximum ATV width of about 50 inches. *Id.* at 1:25–34.

The ’028 patent describes an ATV embodiment having an overall width C of about 50 inches. *Id*. at 4:32–43, Figs. 3, 4. The ’028 patent describes that other embodiments “may be constructed to other suitable widths, however the present invention contemplates ATVs having a trail compliant width or [sic] less than about 54 inches.” *Id.* at 4:43–46.

An illustrative embodiment of side-by-side ATV 10 includes the following: frame 15, a pair of laterally spaced-apart seating surfaces, an engine (modular engine assembly 34) coupled to transmission 136, a pair of front wheels (front tires 22*a* and wheels 24*a*), and a pair of rear wheels (rear tires 22*b* and wheels 24*b*). *Id*. at 3:45–56; 6:5–8, Figs. 1, 2, 9, 15. Figure 1 follows.

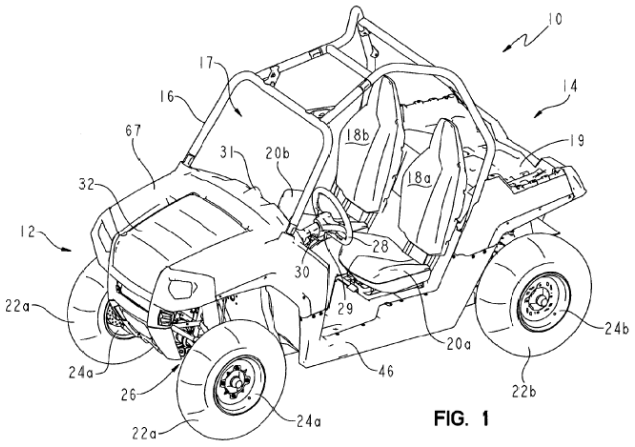


FIG. 1

Figure 1 is a perspective view of an embodiment of a side-by-side ATV. *Id.* at 2:12–13.

B. ILLUSTRATIVE CLAIMS

Of the challenged claims, claim 88 is the sole independent claim, and follows:

> 88. An all-terrain vehicle including:
>
> a frame, comprising a front frame portion, a mid frame portion, and a rear frame portion;
>
> an engine supported by the rear frame portion;
>
> a transmission coupled to the engine;
>
> a pair of front wheels operably coupled to the front frame portion, and driven by the transmission;
>
> a pair of rear wheels operably coupled to the rear frame portion, and driven by the transmission;
>
> a pair of laterally spaced-apart seating surfaces supported by the mid frame portion;
>
> the engine being positioned longitudinally behind the pair of laterally spaced-apart seating surfaces;
>
> a utility bed positioned over the engine and rearward of the pair of laterally spaced-apart seating surfaces;
>
> the rear frame portion comprising a lower rear frame portion and an upper rear frame portion, the upper rear frame portion supporting the utility bed and the lower rear frame portion supporting at least one of the engine and transmission rearward of the pair of laterally spaced-apart seating surfaces;
>
> a front axle assembly supported by the front frame portion and a front drive shaft coupling the transmission to the front axle assembly to drive the front wheels, the front drive shaft extending longitudinally while remaining laterally intermediate innermost sides of the laterally spaced apart seating surfaces;
>
> a rear axle assembly supported by the rear frame portion and coupled to the transmission to drive the rear wheels; and
>
> a passenger compartment intermediate the front and rear wheels, comprising a front panel, a floorboard rearward of the front panel, a base portion positioned under the seating surfaces and a protective panel positioned rearward of the seating surfaces and forward of the engine.

C. CLAIM CONSTRUCTION

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach).

1. Previous Determinations

In the Institution Decision, we determined that front, mid, and rear frame portions as recited in claim 88 should be given their plain and ordinary meaning, with no further construction being necessary. Dec. 8–9. In the Institution Decision we also determined that claim 88 does not require that the floorboard and base portions of the passenger compartment be distinct. Dec. 9–10. Neither party challenges these determinations, and, accordingly, we adopt them here. *See SAS Institute, Inc. v. ComplementSoft, LLC*, 825 F.3d 1341, 1351 (Fed. Cir. 2016) (The Board may not change a claim interpretation from the institution decision where neither party anticipated that "already-interpreted terms were actually moving targets.").

2. All-Terrain Vehicle

The preamble of claim 88 recites "[a]n all-terrain vehicle."

Patent Owner contends that the preamble of claim 88 is limiting. PO Resp. 11–13. In particular, Patent Owner contends that the '028 patent discloses repeatedly that the invention is an "all-terrain vehicle," and the preamble was used to distinguish the claimed invention over prior art during prosecution. *Id.* at 12–13 (analogizing to *Rotatable Techs. LLC v. Motorola Mobility LLC*, 567 F. App'x 941, 943 (Fed. Cir. 2014)).

Petitioner contends that the preamble of independent claim 88 does not "give life, meaning, and vitality" to the claims. Pet. Reply 2 (quoting *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)). Petitioner goes on to assert that if the Board interprets the preamble as limiting, the broadest reasonable interpretation is a "vehicle capable of driving on a variety of terrains." *Id.* (citing Ex. 1002, 1:13-14).

Each of the grounds of unpatentability relies on Nechushtan, and Nechushtan discloses a space frame for "all-terrain vehicles." Ex. 1008, 1:17–20, Figs. 1, 2; Pet. 7, 10 (Nechushtan is an all-terrain vehicle). We need not determine if the preamble of claim 88 is limiting, because each of Petitioner's proposed combinations is for an all-terrain vehicle. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (stating that only those terms which are in controversy need to be expressly construed, and only to the extent necessary to resolve the controversy).

3. Front drive shaft positional relationship to laterally spaced apart seating surfaces

Independent claim 88 requires "a pair of laterally spaced apart seating surfaces," and "a front drive shaft" that extends longitudinally "while remaining laterally intermediate inner most sides of the laterally spaced apart seating surfaces." This limitation is discussed as part of the patentability analysis below.

4. Other Claim Terms

To the extent it is necessary for us to construe other claim terms in this Decision, we do so below in the context of analyzing whether the prior art renders the claims unpatentable.

IV. PATENTABILITY

A. INTRODUCTION

We now determine whether Petitioner has demonstrated unpatentability of the challenged claims by a preponderance of the evidence. 35 U.S.C. § 316(e). We previously instructed Patent Owner that "any arguments for patentability not raised in the [Patent Owner Response] will be deemed waived." Paper 8 ¶ 3; *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,766 (stating that the Patent Owner Response "should identify all the involved claims that are believed to be patentable and state the basis for that belief").

We instituted trial on the following grounds:

Claims Challenged	**References(s)**
88, 94, 97, 99	Nechushtan[10] and Hill[11]
90, 93, 95	Nechushtan, Hill, and Furuhashi[12]
91, 92	Nechushtan, Hill, and Hart[13]
96	Nechushtan, Hill, and Nash[14]
98, 100	Nechushtan, Hill, and Fujimori[15]
101	Nechushtan, Hill, and Kraus[16]

Dec. 33.

[10] U.S. Patent No. 5,954,364, issued Sept. 21, 1999 (Ex. 1008).

[11] U.S. Patent No. 3,407,893, issued Oct. 29, 1968 (Ex. 1010).

[12] U.S. Patent No. 5,327,989, issued July 12, 1994 (Ex. 1009).

[13] Hart's Hunter, Dirt Wheels Magazine, Dec. 1998 (Ex. 1004).

[14] U.S. Patent Publication No. 2004/0195797, published Oct. 7, 2004 (Ex. 1011).

[15] U.S. Patent No. 7,270,336, issued Sept. 18, 2007 (Ex. 1013).

[16] U.S. Patent No. 4,693,134, issued Sept. 15, 1987 (Ex. 1012).

Petitioner relies on a first and second Declaration of Dr. Davis. Exs. 1001, 1032. Patent Owner relies on the Declaration of Dr. John J. Moskwa and Mr. John C. Jarosz. Exs. 2030, 2031.[17]

B. Level of Skill in the Art

The analysis of Petitioner's expert, Dr. Davis, is predicated on the level of skill in the art being either: (1) a bachelor's degree in mechanical engineering or a related field, and at least one year of experience working in automotive engineering or a related field, or (2) experience working in the field of automotive engineering for 2–3 years. *See* Ex. 1001 ¶ 27. Patent Owner does not contest Petitioner's assertion. The prior art of record reflects a level of skill consistent with that asserted by Petitioner. We apply this level of skill to our analysis below.

C. Grounds of Unpatentability

1. Obviousness over Nechushtan and Hill

Petitioner contends that claims 88, 94, 97, and 99 are unpatentable under 35 U.S.C. § 103(a) as obvious over Nechushtan and Hill. Pet. 34–50. For the reasons that follow, Petitioner has established this contention by a preponderance of the evidence.

a) Nechushtan

Nechushtan (Ex. 1008) is titled, "Space Frame for Vehicle." Ex. 1008 (54). Nechushtan discloses that space frames for vehicles are typically found in vehicles intended for off-road driving, such as "dune buggies" and

[17] Exhibit 2032 is a redacted public version of Exhibit 2031.

"all-terrain vehicles." *Id.* at 1:17–20, Figs. 1, 2; Pet. 7. In light of this, Nechushtan is a side-by-side ATV.

b) Hill

Hill is titled, "Motor Vehicles Having Four-Wheel Drive," and includes a front drive shaft extending from a rear engine and transmission to the front drive. Ex. 1010, 1:2–3, Fig. 2; Pet. 10.

c) Claim 88

As an overview, Petitioner contends that Nechushtan discloses the subject matter of claim 88 except the configuration of the engine, transmission, and front drive shaft. According to Petitioner, it would have been obvious to a person of ordinary skill in the art to modify Nechushtan in two respects: one, to configure the engine and transmission as in Hill (mid-mounted engine), and two, to include four-wheel drive with a front driveshaft positioned along the vehicle centerline as taught by Hill and Nechushtan. Pet. 34–36.

(1) Petitioner's Contentions

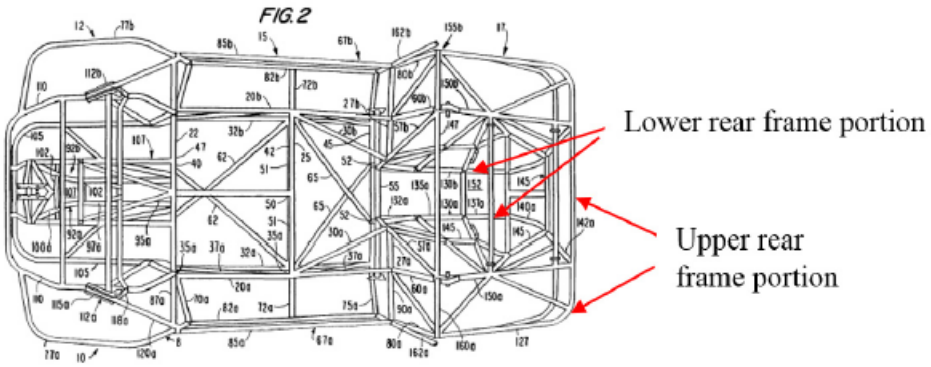
Petitioner contends that Nechushtan discloses an all-terrain vehicle that includes: a frame comprised of front, mid, and rear frame portions, an engine supported by the rear frame portion, a transmission coupled to the engine, a pair of front wheels, and a pair of rear wheels as claimed. Pet. 7–9, 37–40; Ex. 1008, 1:17–20 (disclosing a space frame typically found in vehicles intended for off-road driving, such as "all-terrain vehicles").

Petitioner contends that Nechushtan discloses a pair of laterally spaced-apart seating surfaces supported by the mid-frame portion. Pet. 40; Ex. 1008, Fig. 1; Ex. 1001 ¶ 146; *see also* Pet. 7 (referring to Ex. 1008, Fig. 1 as "showing seats"). Petitioner contends that Nechushtan's basket portion

152 supports the vehicle engine, and is positioned longitudinally behind the pair of laterally spaced-apart seating surfaces, and to the extent that such position is not explicitly disclosed, it would have been obvious to so position the engine in view of Hill. Pet. 40–41 (providing an annotated version of Nechushtan's Figure 2); Ex. 1008, Figs. 1, 2; Ex. 1010, Figs. 1, 2.

Petitioner contends that Nechushtan's utility bed is positioned over the engine and rearward of the pair of laterally spaced-apart seating surfaces. Pet. 41–42; Ex. 1008, Figs. 1, 2.

Regarding a rear frame portion, an annotated version of Nechushtan's Figure 2 follows:

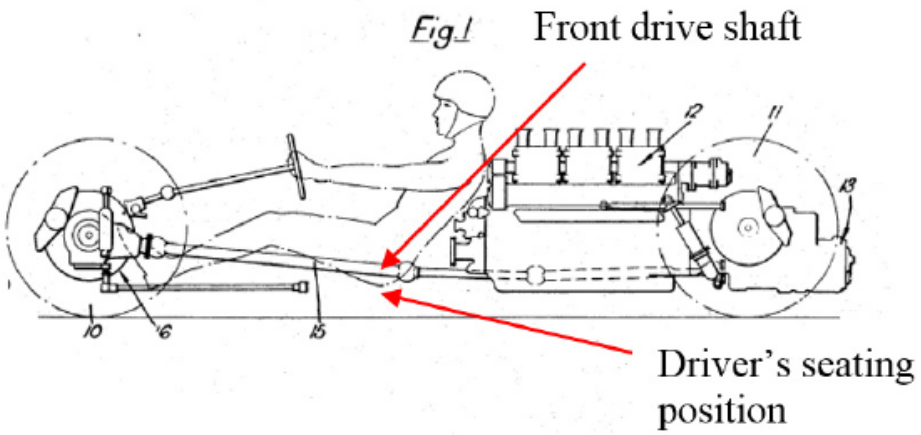


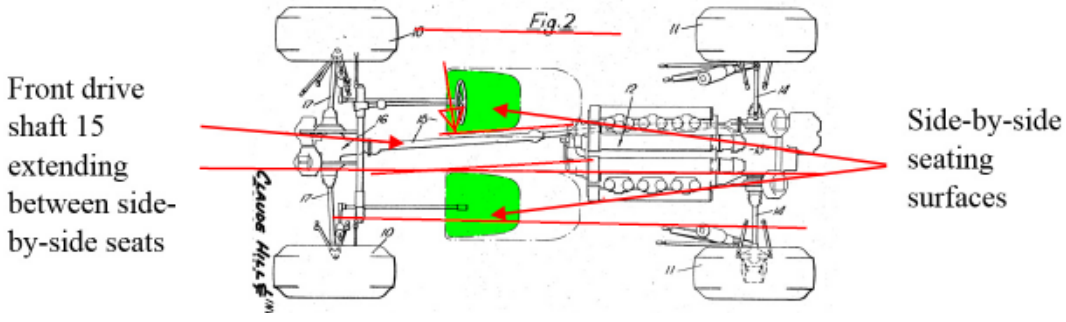
Annotated Figure 2 is a plan view of the frame of Nechushtan's vehicle, and Petitioner has added labels and arrows identifying the elements corresponding to upper and lower frame portions as claimed. Pet. 42–43; Ex. 1008, 2:40–41, Figs. 1, 2.

Regarding the front axle assembly, Petitioner contends, with the support of Dr. Davis, that Nechushtan's cage portion 107 supports a differential, and a person of ordinary skill in the art would have understood that the presence of a front differential indicates that Nechushtan's front wheels are driven, and that power would have been transmitted from the rear

engine/transmission to the front differential by a front drive shaft. Pet. 8, 43–44; Ex. 1008, 5:5–12; Ex. 1001 ¶¶ 60, 152. Petitioner contends that to the extent that Nechushtan does not expressly disclose a front drive shaft coupling the transmission to the front differential to drive the front wheels, Hill discloses a front drive shaft (front propeller shaft 15). Pet. 44; Ex. 1010, 2:55–65, Figs. 1, 2; Ex. 1001 ¶ 153.

Petitioner contends that Hill's driveshaft is positioned laterally intermediate the innermost sides of the seating surfaces, as illustrated in annotated versions of Hill's Figures 1 and 2 that follow:





Annotated Figure 1 is a side elevation and includes Petitioner's annotations identifying the driver's seating position in relation to the front drive shaft, and annotated Figure 2 is a plan view of Hill's racing vehicle, and includes

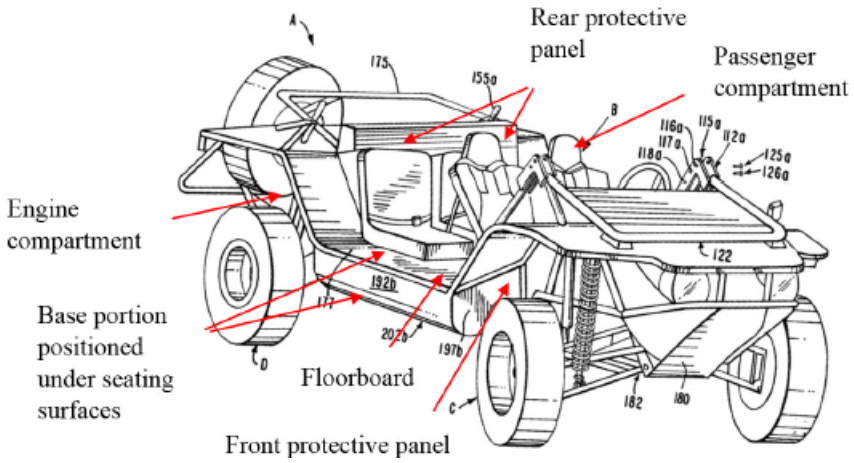
Petitioner's highlighting in green of the portions alleged to correspond to seating surfaces, as claimed. Pet. 44–46; Ex. 1001 ¶ 153; Ex. 1010, 2:44–47, Figs 1, 2.

Petitioner contends that Hill's driveshaft (propeller shaft 15) extends longitudinally while remaining laterally intermediate the innermost sides of the laterally spaced apart seating surfaces, permitting the seat to be placed lower in the vehicle without interfering with the front driveshaft, and lowering the center of gravity. Pet. 36, 44–46; Ex. 1001 ¶ 153. Petitioner contends, with support from Dr. Davis, that a person of ordinary skill would have implemented this concept from Hill on Nechushtan's longitudinal frame member because it offers a direct line to the front axle assembly, and provides a support without the need for significant frame modification. Pet. 46; Ex. 1001 ¶ 154 (providing an annotated version of Nechushtan's Figure 2 identifying the longitudinal frame member involved).

Regarding a rear axle assembly, Petitioner contends that Nechushtan discloses a rear axle assembly supported by the rear frame portion and coupled to the transmission to drive the rear wheels. Pet. 46–47; Ex. 1008, 6:43–47; Ex. 1001 ¶ 155. According to Petitioner, a person of ordinary skill would have understood that Nechushtan's rear transaxle drives the rear wheels. Pet. 46; Ex. 1001 ¶ 155. Alternatively, Petitioner contends that Hill's transmission 13 drives rear wheels 11. Pet. 46; Ex. 1001 ¶ 155; Ex. 1010, Figs. 1, 2; *see also* Ex. 1010, 2:57–62 (describing that engine 12 is connected by transmission 13 to rear half shafts 14 connected to rear wheels 11).

Regarding a passenger compartment, Petitioner contends that Nechushtan discloses a passenger compartment intermediate the front and

rear wheels that includes: a front panel, a floorboard rearward of the front panel, a base portion positioned under the seating surfaces, and a protective panel positioned rearward of the seating surfaces and forward of the engine. Pet. 47–48. In support, Petitioner provides an annotated version of Nechushtan's Figure 1.



Annotated Figure 1 is a front perspective view of Nechushtan's vehicle, and includes Petitioner's annotations of the components of the passenger compartment. Ex. 1008, 2:38–39; Fig. 1.

(2) Patent Owner's Contentions

As detailed below, Patent Owner makes two arguments regarding elements of claim 88. Patent Owner makes several arguments regarding rationale, obviousness analysis, and secondary considerations of obviousness.

(a) Front drive shaft

In the Institution Decision, we interpreted claim 88 as requiring that the front drive shaft remain intermediate of the part of each of the seating surfaces closest to the vehicle centerline, *as viewed in plan view*. Dec. 10–13. At the oral hearing we discussed a broader, yet reasonable,

interpretation, namely, that the limitation should be viewed in any horizontal plane that includes both the seating surfaces and the front drive shaft. *See* Tr. 12:10–16 (Petitioner agreeing with this interpretation), 28:9–35:6 (Patent Owner disagreeing). A plan view is a two-dimensional representation of a three-dimensional object. We observe that interpreting this limitation from plan view would appear to inappropriately narrow the limitation at issue, in that it requires the front drive shaft to be laterally intermediate the inner most sides of the seating surfaces even in a horizontal plane that does not include both the seating surfaces and the front drive shaft. Interpreting the limitation at issue in such a manner would appear to be at odds with the use of the term "lateral," as the lateral direction referred to in claim 88 is not just orthogonal to the longitudinal centerline of the vehicle, but also lies in a horizontal plane. Lateral distance would not be meaningful if measured at an angle to a horizontal plane, as would be required under "plan view." Consequently, a more reasonable interpretation would appear to only require that the front drive shaft remain laterally intermediate of the part of each of the seating surfaces closest to the vehicle centerline, *in any horizontal plane that includes both the seating surfaces and the front drive shaft.* In any case, however, we need not determine if this broader interpretation is applicable because, as detailed below, the asserted ground of unpatentability positions the front drive shaft so that it is remains laterally intermediate the inner most side of the seating surfaces under either claim interpretation.

Patent Owner argues that Hill's propeller shaft 15 does not remain laterally intermediate the part of the seating surfaces closest to the vehicle centerline both with regard to the lower and the upper seating surfaces. PO Resp. 14–18, 35–42. A good deal of Patent Owner's argument deals with the

contention that the limitation at issue applies to both upper and lower seating surfaces. *Id.*

Essentially, Patent Owner argues as if Petitioner proposes to modify Nechushtan to position the front drive shaft exactly as positioned in Hill. In that regard, Patent Owner's argument is unpersuasive because it is not responsive to the ground of unpatentability asserted by Petitioner. *See* Pet. Reply 12–13, 15–16; Ex. 1032 ¶ 12; Ex. 1001 ¶¶ 138–139. As detailed above, Petitioner relies on both Hill and Nechushtan. Petitioner contends that Hill discloses that positioning the front drive shaft between the seats permits the seats to be situated lower in the frame, which lowers the center of gravity. Pet. 44–46; Ex. 1001 ¶¶ 67, 153; Ex. 1010, 2:44–47, Figs 1, 2; *see also* Ex. 1028, 37:8–17 (acknowledging that lowering passengers in the vehicle frame lowers the center of gravity). Petitioner contends that a person of ordinary skill would have applied this teaching from Hill to position the front drive shaft along the centerline of Nechushtan's frame, because doing so offers a direct line to the front axle assembly, and provides support without the need for significant frame modification. *See* Pet. 46; Ex. 1001 ¶ 154. Thus, Petitioner proposes to position the front drive shaft approximately along the centerline of the vehicle so that the seats may be situated lower in the frame. Given that Nechushtan's seats are laterally spaced apart, such configuration would place the front drive shaft laterally intermediate the innermost sides of the seating surfaces (upper and lower surfaces) from both a plan view and in any horizontal plane that includes both the seating surfaces and the front drive shaft.

(b) Protective Panel

Claim 88 requires the passenger compartment to include a protective panel positioned rearward of the seating surfaces and forward of the engine. The claim terms "forward" and "rearward" are relational terms with respect to the front and rear of the ATV. *See, e.g.*, Ex. 1002, 2:16 (describing Figure 3 as a "front view"), 2:32–33 (describing Figure 10 as a perspective view of the "front end of the ATV"); 4:8–10 (describing "[r]ear end **14**" of ATV 10); 8:46–48 (describing rear tubes 207 as positioned "rearwardly" of front tubes 204), Figs. 2, 3, 10, 14, 15. In other words, the terms refer to positions along the longitudinal axis of the vehicle with respect to the front and the rear of the vehicle. *Id.* at 5:24–24, Fig. 9 (describing and depicting longitudinal axis 66). In context, "rearward to the seating surfaces" refers to a longitudinal position between the seating surfaces and the rear of the vehicle and "forward of the engine" refers to a longitudinal position between the engine and the front of the vehicle. The claim terms "forward" and "rearward" are not limited with respect to the height (vertical position) of the component on the ATV.

Patent Owner contends that a protective panel, as claimed, protects passengers in an ATV from at least the engine. PO Resp. 42–43 (referring to the related litigation claim construction at Ex. 2036, 12–13). To the extent that Patent Owner is suggesting that Nechushtan's panel does not protect passengers from an engine related risk, such argument is unpersuasive. Patent Owner's reference to the related litigation claim construction is incomplete, in that the District Court also determined that the claims "say nothing about what specific engine-related or other hazards the panel is intended to protect from." Ex. 2036, 13. The court also noted that the

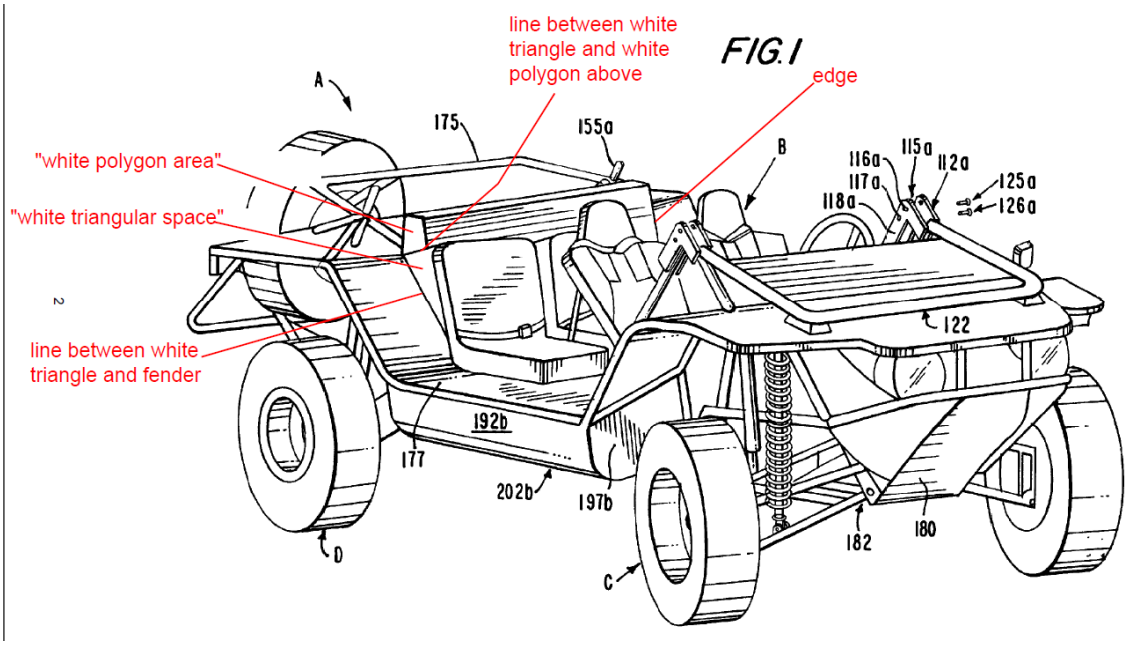
description in the Specification relating to moving engine parts and noise was exemplary.[18] *Id.* Although we differ from the District Court in that we apply a broadest reasonable interpretation, we agree, here, with the District Court's claim construction. Patent Owner made a similar argument regarding the protective panel at issue in the '1427 IPR, and our analysis there is applicable here. *See* Pet. Reply 16–17; '1427 IPR, Paper 58 at 30; *Omega Eng'g Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003) ("[P]resume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning.").

Patent Owner contends that the element of Nechushtan identified by Petitioner is not a protective panel, as claimed; rather, it is a headrest positioned higher than the seatback and utility bed. PO Resp. 42–44. In support of that interpretation, Patent Owner notes that there is a white polygon on the left end of the element of Nechushtan identified by Petitioner, and notes that the shading is not carried down between the seats. *Id.* at 43. Further, according to Patent Owner, there is nothing behind the seatbacks and in front of the engine. *Id.* at 44. In support, Patent Owner identifies a white triangular space under the white polygon that has a clear line between that space and the adjacent shaded fender, and between that space and the white polygon above. *Id.*

[18] The court referred to the '220 patent, but a similar disclosure is found at in the '028 patent. *See* Ex. 1002, 7:47–51. This disclosure may refer to the continuously variable transmission (CVT) cover rather than the protective panel. The parties agreed in the related litigation that the structure appearing in Figure 19 is the CVT cover, not the protective panel. *See* Ex. 2045, 47. Either way, the description is exemplary and does not alter our claim construction.

Accepting, for the sake of argument, that Patent Owner is correct that the portion of Nechushtan identified by Petitioner serves as a headrest, that headrest is positioned longitudinally between the seating surfaces and the rear of the vehicle and between the engine and the front of the vehicle. In such position, it serves, at least to some degree, to protect at least a portion of each passenger (for example, the head and neck of a passenger). Patent Owner has not articulated, and we are unable to ascertain independently, why such "protection," however limited, is insufficient to meet the claim limitation. Consequently, this element corresponds to a protective panel, as claimed. In that regard, Patent Owner's arguments relating to the height of the protective panel with respect to the seatback and utility bed are misplaced. As explained above, claim 88 limits the protective panel with respect to lateral position, but not with respect height to (vertical position on the ATV).

Even aside from the headrest, Patent Owner's assertions are unpersuasive. To facilitate discussion, Nechushtan's Figure 1 is reproduced below with annotations corresponding to Patent Owner's assertions.



Annotated Figure 1 is a front perspective view of Nechushtan's vehicle, and includes annotations corresponding to Patent Owner's assertions.[19] Ex. 1008, 2:38–39; Fig. 1; PO Resp. 42–44. Patent Owner's contention regarding the absence of shading between the rears seats is unpersuasive because, in this perspective view, the edge of the seat behind the driver's seat blocks the view of the portion of the protective panel between the seats. Regarding the border lines of the polygon and triangular white areas, while we agree with Patent Owner that this portion of Figure 1 is not the model of clarity, we find that these lines do not indicate the absence of a protective panel; rather, these lines indicate the transition between materials. To find otherwise requires a tortured logic that these spaces somehow represent empty areas with a line, nevertheless, forming a border between the otherwise empty polygon and triangle. Perhaps most importantly, the edge of the protective panel is visible adjacent and outboard of the seat behind the

[19] Patent Owner did not make an assertion regarding the labeled "edge."

driver's seat, as labeled above. Consequently, we agree with Petitioner that, when the above is considered in the aggregate, a person of ordinary skill would recognize that Nechushtan includes a protective panel rearward of the seating surfaces and forward of the engine. *See* Pet. Reply 16–18.

(c) Front Drive Shaft and Protective Panel Conclusion

For the foregoing reasons, we find that Petitioner has established by a preponderance of the evidence that the prior art discloses the front drive shaft and protective panel elements of claim 88. We now turn to the reasons for the proposed modifications.

(d) Rationale and Other Factors

As mentioned above, Petitioner proposes two modifications of Nechushtan: one, to configure the engine and transmission as in Hill (mid-mounted engine), and two, to include four-wheel drive with a front driveshaft positioned approximately along the vehicle centerline as taught by Hill and Nechushtan. Pet. 34–36. These modifications illustrate the differences between Nechushtan and the claimed subject matter.

Petitioner reasons that modifying Nechushtan's engine and transmission to be configured like Hill's would enhance vehicle balance and drivability.[20] Pet. 35. Petitioner provides three reasons for modifying Nechushtan's front drive shaft: (1) to achieve the predictable benefits of four-wheel drive (*e.g.*, increased traction and better acceleration in off-road

[20] Petitioner presents rationale for both modifications as four reasons and Patent Owner breaks this into six reasons. *Compare* Pet. 34–36; PO Resp. 32–33. Rather than use either of these groupings, we address the rationale associated with each of the two proposed modifications.

conditions), (2) the addition of four-wheel drive was use of a known technique to improve similar devices, and would have led to predictable results, and (3) implementing a front drive shaft laterally intermediate the innermost sides of the laterally spaced apart seating surfaces would allow for a direct path between the transmission and the front axle assembly, and would permit the vehicle's seats to be positioned lower in the vehicle without interfering with the front drive shaft, lowering the center of gravity. Pet. 34–36.

Patent Owner contends that Petitioner failed to consider that "an invention can often be the recognition of a problem itself." PO Resp. 19 (quoting *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc*., 381 F.3d 1371, 1377 (Fed. Cir. 2004); also citing *Nike, Inc. v. Adidas AG*, 812 F.3d 1326 (Fed. Cir. 2016[21]); *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1356–57 (Fed. Cir. 2013)). In support of this contention, Patent Owner asserts that the '028 patent: (1) created a missing vehicle type, namely, a side-by-side utility vehicle with recreational attributes, and (2) solved a stability problem before the industry recognized that problem. *Id*. at 19–28. For the reasons that follow, both of these contentions are factually incorrect, and the case law cited does not support the contention asserted.

Regarding creating a new vehicle type, Patent Owner contends that the RZR® is a "sport-focused, high performance, side-by-side vehicle capable of vigorous off-road driving" that filled a need that the industry

[21] Patent Owner cites this case as "2006," the correct date is 2016.

failed to recognize.[22] PO Resp. 25. Patent Owner contends that prior to the '028 patent, off-road recreational vehicles could be grouped into three types: saddle-ride ATVs, utility vehicles designed for work, and dune buggies designed for desert racing. PO Resp. 20; *see also* Ex. 2030 ¶¶ 48–54 (describing these vehicle types). Patent Owner contends that conventional side-by-side vehicles (*e.g.*, the "Hart Hunter," the Yamaha Rhino, and the Arctic Cat Prowler) emphasized utility functionality at the expense of sport qualities, such as by mounting the engine under the seating area (resulting in a higher center of gravity and less stability and agility). PO Resp. 20–25.

Contrary to Patent Owner's assertion, we determine that the '028 patent did not create a new ATV type. No such assertion is made in the '028 patent. Ex. 1002. As is shown in the secondary considerations analysis below, the recreational side-by-side market is considered to have begun in 2003, well before the '028 patent. *See* Ex. 2041-5; *see also* Ex. 2091, 2 (stating that recreational utility vehicles began with the Polaris Ranger, gained momentum with the Yamaha Rhino and evolved with Polaris Ranger RZR®). More importantly, whether the claimed subject matter is a device that creates a new category is not the proper focus of an obviousness inquiry. Categorizing vehicles is a subjective determination. *Compare* Ex. 2064, 50 (categorizing the RZR® 800 as a utility task vehicle (UTV)[23] rather than an ATV), *with* Ex. 2039, RZR® 800 Owner's Manual (referring to the RZR® as

[22] In this assertion, Patent Owner consistently refers to the "RZR®" (a brand of vehicles) rather than the RZR® 800 (a specific member of that brand). *See* PO Resp. 23–26; *see also* Ex. 2028 ¶ 2 (referring to "Polaris's RZR® brand vehicles").

[23] *See* Ex. 2049, 1 (defining UTV).

a sport vehicle); *see also* Ex. 2068, 7 (noting that the Ranger RZR® has utility attributes: "this vehicle is not just for play"); Ex. 2081, PLRS000567–68 (stating the purpose of the Ranger RZR® as play first, work second and stating that it has "more utility"); PO Resp. 26 (referring to the Yamaha Rhino as a member of the recreational/utility market).

Regarding the stability problem, Patent Owner contends that from its launch in 2004, the Yamaha Rhino was a market leader in the recreational/utility side-by-side market, and the industry did not appreciate that the Rhino suffered from safety and stability problems. PO Resp. 26–27. Patent Owner contends that the '028 patent centralized the weight of riders, engine, and transmission to lower the center of gravity and increase stability. *Id.* at 26; Ex. 2030 ¶¶ 26, 32–34.

Contrary to Patent Owner's assertion, we determine that the '028 patent did not solve an unrecognized stability; rather, as Patent Owner's expert has acknowledged, vehicle stability concerns in the ATV industry pre-date the '028 patent. *See* Pet. Reply 9; Ex. 1028, 48:1–19. Further, to the extent that Patent Owner's argument suggests that the prior art of this ground of unpatentability must be combined for the same reason as the '028 patent, such is not the law. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.).

Furthermore, even if Patent Owner's factual assertions were correct, the three cases cited by Patent Owner do not support the contention that invention can be recognition of a problem itself.

Cardiac Pacemakers did not hold that recognition of a problem was invention. Rather, while we acknowledge that the court in that case observed that situations can arise wherein identification of the problem was itself the invention, the court actually held that such was not the case for the invention at issue. *Cardiac Pacemakers*, 381 F.3d at 1377. Therefore, the statement that invention may be identification of the problem is dicta.

Nike does not support Patent Owner's assertion. According to Patent Owner, *Nike* reversed the Patent Trial and Appeal Board ("the Board"), "because nothing in the cited prior art appreciated the problem the invention recognized and then solved." PO Resp. 20. The court in *Nike* did not reverse the Board; rather, it affirmed in part, vacated in part, and remanded. *Nike*, 812 F.3d at 1326. More importantly, the remand was not because the prior art failed to recognize a problem; rather, the court remanded due to the Board's failure to consider secondary considerations, inadequate factual findings, and improper grouping of claims. *Id.*

Leo Pharmaceutical did state that "[t]he '013 patent, however, is not simply a combination of elements found in the prior art. The inventors . . . recognized and solved a problem . . . that the prior art did not recognize."). *See Leo Pharm.*, 726 F.3d at 1354[24] 1356–57 (Fed. Cir. 2013). This statement, however, must be considered in context. Leo Pharmaceutical presented evidence of a teaching away from the claimed subject matter. The Court determined that the Board used improper hindsight because the Board did not address the evidence of teaching away, and because the record showed no reason for the proposed combination. *Id.* at 1354. Therefore,

[24] Patent Owner cites pages 1356–57, but the quoted material is found at 1354.

Leo Pharmaceutical stands for the proposition that where a solution is taught away from, and there is no reason for the combination, finding that solution can be nonobvious. The case at hand is distinguishable in both respects: we are not persuaded that the claimed subject matter was taught away from, and, as explained below, Petitioner provides an adequate reason for the combination.

Consequently, we agree with Petitioner that Patent Owner's obviousness analysis improperly focuses on categorizing the RZR® 800. *See* Pet. Reply 8–9.

Patent Owner next contends that Petitioner did not identify a problem recognized by industry or prior art, nor demonstrate why a person of ordinary skill would have deviated from conventional wisdom to arrive at Patent Owner's invention. PO Resp. 28–29. Rather, according to Patent Owner, Petitioner used impermissible hindsight by simply locating the claimed elements in the prior art. *Id.*

In part, this argument repeats the previous argument that recognition of the problem itself was invention and that Petitioner's ground of unpatentability must seek to solve that same problem. This contention is unpersuasive for the reasons given above. Regarding the allegation that Petitioner simply located the claimed elements in the prior art, such a general assertion does not address persuasively the reasons proffered by Petitioner.

Patent Owner contends further that Petitioner rigidly and prospectively applied *KSR* as evidenced by repetition of the phrase, "[w]hen a patent 'simply arranges old elements with each performing the same function it has been known to perform' and yields no more than one would

expect from such an arrangement, the combination is obvious." PO Resp. 30 (citing Pet. 13, 36 (quoting *KSR*, 550 U.S. at 421). Petitioner's two-time use of a phrase from *KSR* does not demonstrate effectively that Petitioner's obvious analysis was too rigid.

Patent Owner contends also that the '028 patent "yielded far more than expected," revolutionizing the ATV industry, creating a new sport ATV market segment, and solving unrecognized stability/safety problems. PO Resp. 30. This contention is simply a restatement of the assertion that the '028 patent created a new ATV category.

Patent Owner contends additionally that Petitioner's use of secondary and tertiary references only makes sense with hindsight, and should be rejected. PO Resp. 31–32. In particular, Patent Owner contends that a person of ordinary skill would not combine Nechushtan and Hill because Hill discloses an extremely low-clearance race car unsuited for all-terrain applications. PO Resp. 33; Ex. 2030 ¶ 79.

To the extent that Patent Owner's assertion suggests that Hill is nonanalogous art, we disagree. As discussed above, Hill discloses a vehicle having four-wheel drive, a mid-mounted engine, and a front drive shaft configured to permit the seats to be mounted lower in the frame, all disclosures that are reasonably pertinent to the problem faced by the inventor of the '028 patent (improving a side-by-side ATV). Further, Petitioner does not rely upon any aspect of Hill that would give the proposed combination low-clearance; rather, Hill is relied upon with regard to the engine and transmission configuration and positioning of the front drive shaft. *See* Pet. 35, 40–41, 43–46; Pet. Reply 10–11.

Patent Owner contends further that the proffered reasons are impermissible hindsight because they are general statements applicable to an abundance of prior art references. PO Resp. 32–35. Patent Owner's contention could perhaps be persuasive if Patent Owner had presented argument or evidence that the modification would not provide the asserted benefits. We agree with Petitioner, however, that Patent Owner did not. *See* Pet. Reply 11. We also agree with Petitioner that Patent Owner's assertion that other prior art references could provide such enhancement underscores the obviousness of the claimed subject matter. *See id.* at 11–12.

Patent Owner contends also that a person of ordinary skill would not have positioned the seats lower in the frame, because it would have necessitated overhauling Nechushtan's frame structure. PO Resp. 33; Ex. 2030 ¶ 80. This contention is unpersuasive. Patent Owner's expert presents a single sentence opining that the modification would have required overhauling Nechushtan's frame structure. Ex. 2030 ¶ 80 (last sentence). This opinion is not accompanied by underlying facts or data, and does not explain persuasively why that is the case. We are persuaded by Petitioner's argument and evidence that such alterations of the vehicle frame were predictable and within the ability of a person of ordinary skill to accomplish. Pet. Reply. 12; *see also* Pet. 45–46; Ex. 1008, Fig. 2; Ex. 1001 ¶ 154.

Patent Owner contends additionally that Petitioner's reasoning that positioning the front drive shaft along the vehicle centerline to "allow for the most direct path between the transmission and the front axle assembly" has no bearing on whether the drive shaft is between the innermost sides of the seats, because Petitioner's expert has conceded that the "most direct path typically is angled." PO Resp. 33–34. We are unpersuaded because Patent

Owner's argument and evidence suggesting that a non-angled front drive shaft is "unusual" falls short of demonstrating that such positioning is beyond the level of skill in the art, or otherwise nonobvious. Further, even if we were to accept that some angle is present, Patent Owner presumes that the proposed modification positions the front drive shaft at such an angle that it is no longer laterally intermediate the innermost sides of the seating surfaces. Petitioner proposes that the drive shaft be positioned so that it permits the seats to be positioned lower in the frame, and so that the drive shaft is supported by Nechushtan's existing centerline longitudinal frame member. Pet. 35, 45–46; Pet. Reply 15. Such positioning places the front drive shaft approximately parallel to the longitudinal vehicle centerline, even if somewhat angled.[25]

Patent Owner mentions the 40+ year gap in the references. PO Resp. 31–32. The passage of time alone does not demonstrate effectively the non-obviousness of the claimed subject matter.

After considering Patent Owner's contentions, we pivot back to Petitioner's proffered modifications themselves. We are persuaded that modifying Nechushtan to have a mid-mounted engine configuration such as Hill's (*i.e.*, the transmission extending rearward of the engine) would enhance vehicle stability and maneuverability. *See* Pet. 35; Pet. Reply 11–12. In making this determination, we credit Dr. Davis's supporting explanation that such configuration places the engine closer to the middle of

[25] This is consistent with Dr. Davis's Deposition. *See* Ex. 2112, 45:15–46:12 (referring to the front drive shaft as along "roughly the shortest path" rather than as parallel to the longitudinal axis of the vehicle).

the vehicle and provides such performance enhancements. *See* Ex. 1001 ¶¶ 130–131.

We are persuaded further that modifying Nechushtan to include a front drive shaft as part of adding four-wheel-drive capability would increase traction and acceleration in off-road conditions, and was a predictable use of a known technique to improve similar devices. *See* Pet. 34–36; Ex. 1001 ¶ 148. Further, as Patent Owner admitted in the '1427 IPR, the benefits of four-wheel drive, to include increased traction and better off-road acceleration were known. *See* '1427 IPR, Paper 58 at 17.

We are persuaded additionally that implementing the front drive shaft laterally intermediate the innermost sides of the laterally spaced apart seating surfaces would permit the vehicle's seats to be positioned lower in the vehicle without interfering with the front drive shaft, lowering the center of gravity. Pet. 34–36; Pet. Reply 11–12. We credit Dr. Davis's supporting testimony. Ex. 1001, 158. Further, Patent Owner admitted in the '1427 IPR that it was known that raising the center of gravity of a vehicle relative to an unmodified vehicle decreases vehicle stability, and, thus, the converse must also have been recognized. *See* '1427 IPR, Paper 58 at 17; *see also* '1788 IPR, Ex. 1023, 42:14–15 (testifying that center of gravity calculations were known in 2006).

(e) Predictability and Reasonable Expectation of Success

As discussed above, Petitioner provides an adequate supporting explanation for each proposed modification.

Patent Owner argues that Petitioner provided no explicit showing of a reasonable expectation of success, and, in fact, that Dr. Davis's testimony

casts doubt on that issue. PO Resp. 31 (quoting Dr. Davis's testimony at Ex. 2020, 77:13–23, and citing *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013)). In the quoted testimony, Dr. Davis is asked if Nechushtan's vehicle is stable. Ex. 2020, 77:13–23. This question was asked in the context of reasons for adding a front stabilizer bar to a vehicle, a feature of claim 98. *Id.* at 76:5–82:21. Consequently, this discussion does not pertain to independent claim 88 and does not persuade us that Petitioner has not demonstrated a reasonable expectation of success with regard to claim 88.[26]

Furthermore, we disagree with Patent Owner's application of *KSR*. The cited portion of *KSR* was not discussing a reasonable expectation of success. Rather, in the cited portion of *KSR*, when discussing an obviousness analysis of certain claimed subject matter,[27] the court stated that "[t]o facilitate review, this analysis should be made explicit." *KSR*, 550 U.S. at 418. We are unpersuaded that Petitioner has proffered any modification that would cause us to conclude that there was not a reasonable expectation of success. Indeed, in view of the proffered level of ordinary skill in the art, the modifications appear straightforward and logical.

In light of Petitioner's and Patent Owner's contentions as discussed above, we are persuaded that Petitioner has demonstrated a reasonable likelihood of success in combining references to meet the limitations of

[26] We address this assertion in our analysis of claim 98 below.

[27] Matter involving more than the simple substitution of one known element for another or mere application of a known technique to a piece of prior art ready for the improvement.

claim 88. *See Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016).

(f) Secondary Considerations

1. Introduction

Patent Owner argues that the commercial success of, and industry praise for, the RZR® 800 demonstrates the nonobviousness of the claimed subject matter. PO Resp. 59–69.

It is not disputed that the RZR® 800 encompasses the challenged claims. PO Resp. 59; *see also* PO Resp. 69–94 (claims chart); Ex. 2030 ¶¶ 63–72, App'x A; Tr. 58:9–59:1 (stating that "there's no dispute that their [Patent Owner's] RZR® embodies claim 88"). In light of this, Patent Owner has established a presumption of nexus between the proffered objective evidence of secondary considerations and the challenged claims. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1329 (Fed. Cir. 2016). This presumption is rebuttable, and could, for example, be rebutted by evidence that the proffered objective evidence was due to factors other than the patented invention such as unclaimed or non-novel features. *Id.* Patent Owner need not prove that the objective evidence is tied to a specific claim element; rather, the proper inquiry is whether the claimed invention as a whole would have been obvious. *Id*. at 1331–32.

In response, Petitioner argues that the attributes Patent Owner argues contributed to the success of the RZR® 800, namely, lower center of gravity, stability, and maneuverability, are not elements that are recited in the claims. Pet. Reply 25–26.

The dispute between the parties is whether the commercial success of, and industry praise for, the RZR® 800 is attributable to claimed

characteristics. Evidence of non-obviousness must be reasonably commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011). We analyze the record mindful that this is a fact-specific inquiry and there is no hard-and-fast rule for taking into account the degree of connection between secondary considerations and the claimed subject matter. *See ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1221 (Fed. Cir. 2016).

Before addressing each secondary consideration separately, we note that overall, we are unpersuaded by Patent Owner's assertions and evidence, primarily because both considerations, commercial success and industry praise, suffer from two shortcomings. First, as explained above, our rules require that we consider the argument and evidence of each party to the extent that it is explained sufficiently in the corresponding brief. As noted below, several times Patent Owner does not explain sufficiently the argument or evidence cited.

Second, Patent Owner primarily attributes the commercial success and industry praise to a low center of gravity. More specifically, Patent Owner asserts that the claimed arrangement necessitates that the claimed ATV has a low center of gravity. PO Resp. 62–63 (citing Ex. 2030 ¶¶ 32–35; 2031 ¶¶ 37–40). The paragraphs of Dr. Moskwa's Declaration cited by Patent Owner explain that a vehicle's center of gravity impacts vehicle stability, safety, handling, and performance, and that lowering the center of gravity is a useful goal. Ex. 2030 ¶¶ 32–33. These paragraphs also discuss the center of gravity of the RZR® 800 as compared to competitors. *Id.* at 33–35. Further, Dr. Moskwa presents the conclusion that a low center of gravity flows directly from, and is a result of, the claimed arrangement; however,

these conclusions are ultimately unpersuasive because Dr. Moskwa does not explain cogently how the claimed arrangement provides that low center of gravity. Ex. 2030 ¶ 32 (first two sentences). For example, Dr. Moskwa does not discuss the impact of the engine being positioned longitudinally behind the laterally spaced-apart seating surfaces, or the front drive shaft remaining laterally intermediate the seating surfaces. The Declaration of Mr. Jarosz adds nothing to this analysis, because Mr. Jarosz's opinions are based on Dr. Moskwa's analysis of how the RZR® embodies the claimed subject matter. *See* Ex. 2031 ¶¶ 7–10, 12, 17.

More specifically, contrary to Patent Owner's assertions, the claimed arrangement does not necessarily result in a low center of gravity. Both in his Declaration and at his Deposition, Dr. Moskwa, states that an ATV configured with the engine high off the ground could be within the scope of claim 88 and would not have a low center of gravity. *See* Ex. 2030 ¶ 40; Ex. 1028, 78:12–79:5; Pet. Reply 25. Dr. Moskwa goes on to assert that such a configuration would be "outrageous" or "not even close to reasonable." *Id.; see also* PO Resp. 61 n.13 (acknowledging such configuration would be "outrageous" but within the scope of the claims).

On the one hand, Dr. Moskwa's acknowledgment that an ATV with a high mounted engine is not explicitly outside the scope of claim 88 can be seen as an admission that the requirements of claim 88 do not necessarily produce an ATV with a low center of gravity. On the other hand, Dr. Moskwa's elaboration that accounting for use as an ATV, and the view of a person of ordinary skill in the art, precludes the possibility of a configuration with such a high mounted engine, suggests that Dr. Moskwa

interprets claim 88 to require a low center of gravity. We agree with the former.

Claim 88 does not contain such a requirement. None of the challenged claims explicitly recite a low center of gravity. *See* Ex. 1002, 18:28–62, 18:66–19:19, 21:7–18; Pet. Reply 25. Patent Owner does not identify any portion of the prosecution history limiting the challenged claims to a low center of gravity. Nor does Patent Owner identify a lexicographical definition that would incorporate such meaning into the claims. Further, as we observed in the '1427 IPR, the term "low center of gravity" is a relative term that has meaning only in relation to something else. *See* '1427 IPR, Paper 58 at 17. For example, a claim could recite a center of gravity with respect to the ground (e.g., "a center of gravity no higher than fourteen inches above the ground"). Here, claim 88, when read in light of the specification as interpreted by a person or ordinary skill in the art, does not contain a point of reference that gives substantive meaning to a low center of gravity.

Patent Owner also attributes the commercial success and industry praise of the RZR® 800 to the claimed width of 50 inches.[28] PO Resp. 63. Patent Owner contends that the RZR® 800's low center of gravity results in greater stability, agility, and maneuverability that allows the ATV to be narrowed to 50 inches. *Id.* Patent Owner's own assertions undermine this contention. Patent Owner characterizes the "Hart Hunter" as a side-by-side ATV having an engine mounted under the seat that meets utility-based needs (as opposed to sport performance needs), and, yet, the Hart Hunter has a

[28] Dependent claim 92 recites "wherein the vehicle width is approximately 50 inches."

stock width of 48 inches. *See* PO Resp. 22; Pet. 11–12, 55; Ex. 1004, ¶ 71. We discern that such a vehicle, having a mid-mounted engine, would have a higher center of gravity than the vehicle embodied by dependent claim 92, which has a rear-mounted engine. Thus, contrary to Patent Owner's assertion, a low center of gravity is not a prerequisite to a vehicle width of 50 inches.

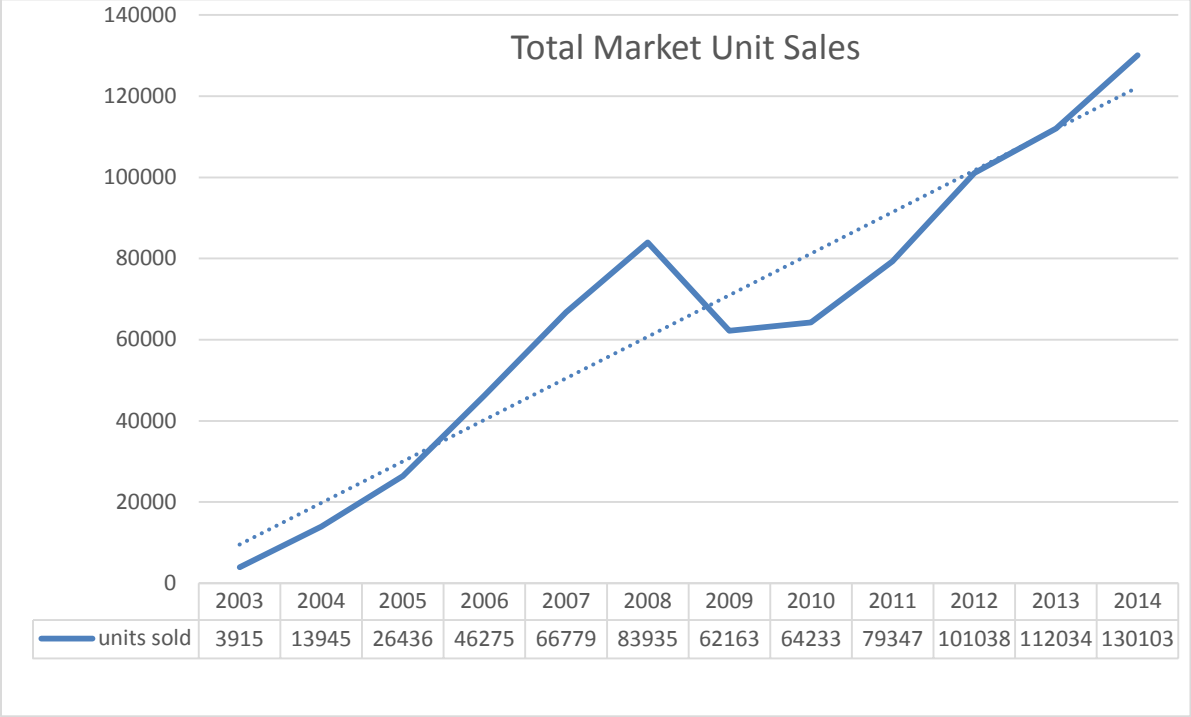
Patent Owner's evidence of the commercial success of, and industry praise for, the RZR® 800 is not entitled to substantial weight because the challenged claims are not limited to a low center of gravity. Given Patent Owner's incorrect assertion that low center of gravity is a prerequisite to a vehicle width of 50 inches, evidence of success and praise related to this feature is also not entitled to substantial weight.

2. Commercial Success

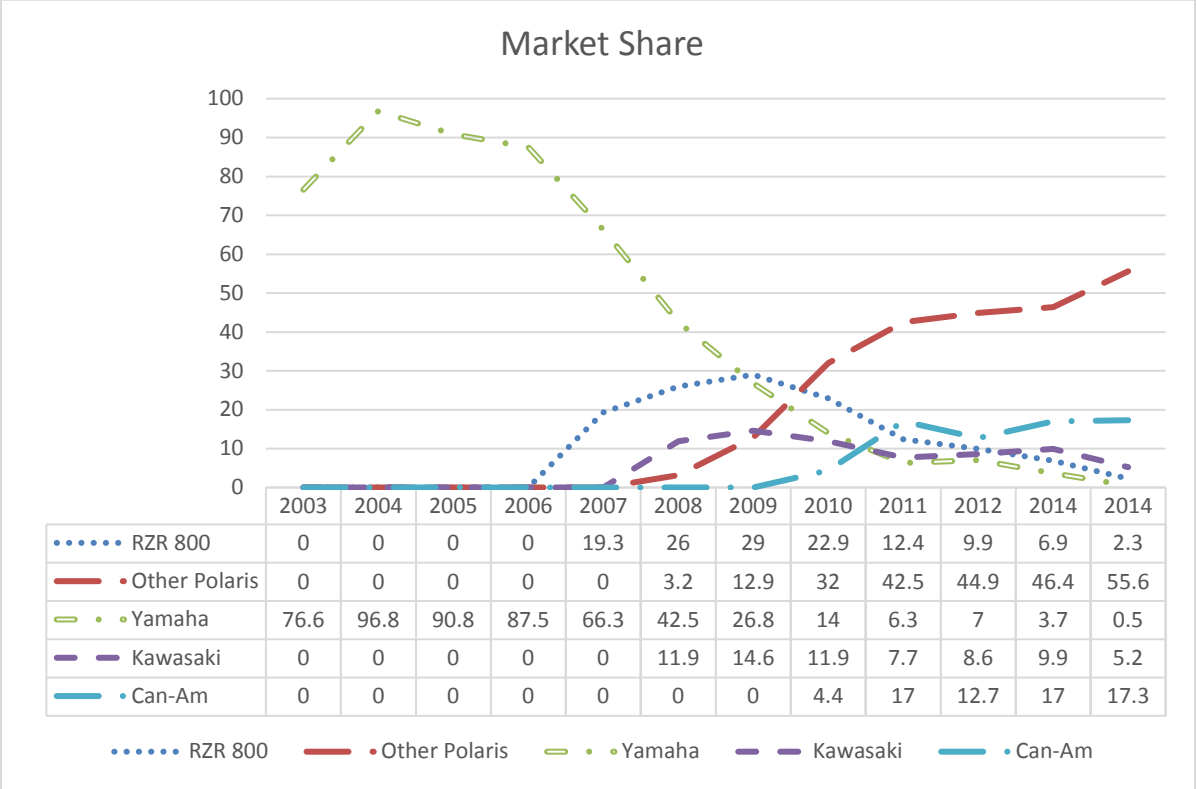
Regarding commercial success, Patent Owner contends that the RZR® 800 accounted for over a billion dollars in sales globally and $800 million domestically. PO Resp. 61; Ex. 2031 ¶¶ 47, 50–52. Further, Patent Owner contends that in the first year of sales, the RZR® 800 captured 20 percent of the market. *Id.* at 61–62 (citing Ex. 2031 ¶¶ 50–51, 56–58). Patent Owner attributes this success to the low center of gravity of the RZR® 800 that is achieved by the claimed arrangement (i.e., situating the engine, transmission, and occupants low in the frame). *Id.* at 62–63.

We begin by putting this commercial performance into perspective. Patent Owner relies on the analysis of Mr. Jarosz, an economist specializing in intellectual property evaluation. Ex. 2031 ¶¶ 12–13; *see also* Ex. 2040 (curriculum vitae). Mr. Jarosz's analysis is premised on Dr. Moskwa's opinion that Polaris RZR® 800 vehicles are covered by independent claim 88

as well as claims 90–100. Ex. 2031 ¶ 9. The data used by Mr. Jarosz was used to create the following two charts. *Id.* at 16 (citing to the data at Ex. 2041-3–2041-8).



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
units sold	3915	13945	26436	46275	66779	83935	62163	64233	79347	101038	112034	130103



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2014
RZR 800	0	0	0	0	19.3	26	29	22.9	12.4	9.9	6.9	2.3
Other Polaris	0	0	0	0	0	3.2	12.9	32	42.5	44.9	46.4	55.6
Yamaha	76.6	96.8	90.8	87.5	66.3	42.5	26.8	14	6.3	7	3.7	0.5
Kawasaki	0	0	0	0	0	11.9	14.6	11.9	7.7	8.6	9.9	5.2
Can-Am	0	0	0	0	0	0	0	4.4	17	12.7	17	17.3

The first chart shows total units sold in the North America Recreational Side-by-Side Market from 2003–2014, and the second chart shows percentage of market share for the same market and time period.[29] *See* Ex. 2031 ¶ 57; Ex. 2041-5. The Total Market Unit Sales Chart includes a dotted linear trendline.

The market share data is for sales of the RZR® 800, RZR® Camo, and RZR® LE. Ex. 2041-5 n.3. Patent Owner submitted evidence that claim 88 covers the RZR® 800, and "other RZR® 800 models sold by Polaris such as the RZR® S 800 and RZR® 4 800." Ex. 2030 ¶ 70. Therefore, the value of

[29] The second chart does not include data for every manufacturer, only those relevant to this analysis. For that reason, the displayed data for each year does not total 100 percent, but the data displayed is the actual market share considering all manufacturers. The "Other Polaris" category represents sales of Polaris vehicles other than the RZR® 800 models.

this market share data is diminished by the fact that it includes data for models (*i.e.*, the RZR® Camo and RZR® LE) that Patent Owner has not shown are covered by claim 88.

These charts illustrate several important points. The RZR® 800's growth in market share took place during a period of dramatic growth in the recreational side-by-side market. Initially, the recreational side-by-side market was nearly completely dominated by Yamaha (from 2003 to 2006 a market share of 77, 97, 91, and 88 percent, respectively). *See* PO Resp. 26–27 (acknowledging that Yamaha dominated the market). In 2007, the first year of sales for the RZR® 800, there were only three manufacturer groupings other than Polaris (Arctic Cat, Yamaha, and "Others"). The significance is that RZR® 800's 2007 market share of 19 percent is less impressive given that the market only had four manufacturers at the time, as compared to such results in a market comprised of more manufacturers. In particular, each new entrant into the market also made quick gains in market share that were comparable to that of Polaris. For example, Kawasaki obtained a 12 percent market share the first year (2008) as one of five manufacturers, and Can-Am obtained a 17 percent market share in two years (2010–2011), as one of six manufacturers. In the first three years on the market, the RZR® 800 rose to a 29 percent market share (2007–2009), while Polaris vehicles other than the RZR® 800 rose to a 32 percent market share (2008–2010). In other words, Polaris vehicles other than the RZR® 800 enjoyed equal to or slightly greater commercial success during the first three years of production than the RZR® 800. All of this undercuts severely the weight to be accorded Polaris's evidence of commercial success.

Patent Owner contends further that other narrower features are important drivers of sales too. PO Resp. 63–64. In particular, Patent Owner mentions the front stabilizer bar (claim 98), and a power-to-weight ratio equal to at least 0.045/1 horsepower per pound (claim 101) as features that were "consistently touted," and, thus, that constitute separate independent bases for showing commercial success. *Id.* (citing Ex. 2082, PLRS000396; Ex. 2031 ¶¶ 33, 93, 96–98; Ex. 2030 ¶ 37).

The evidence regarding these other features is worthy of little weight. The cited portion of Dr. Moskwa's Declaration opines regarding the characteristics of the claimed stability bar and power-to-weight ratio, but does not tie those characteristics to the commercial success. *See* Exhibit 2030 ¶ 37. The cited portion of Exhibit 2082 touts the front stabilizer bar and the power-to-weight ratio; however, this exhibit touts numerous other features, such as, electronic fuel injection (EFI), greater rear suspension travel, lighter steering, and lower cage height. Ex. 2082, PLRS000396*; see also id.* at PLRS000394 (discussing the 300 pound cargo bed, highest top speed, and plenty of utility). The cited portions of Mr. Jarosz's Declaration do not add support to Patent Owner's assertion. Only paragraph 96 relates to the front stabilizer bar and power-to-weight ratio of the RZR® 800, and there, Mr. Jarosz simply observes that the features are prominently mentioned in Exhibit 2082. *See* Ex. 2031 ¶ 96 (reproducing pages PLRS000394–95 of Ex. 2082). Although those features are prominently mentioned, the same is true of unclaimed features such as a 300 pound cargo bed, highest top speed, and on-demand all-wheel drive. Further, although Patent Owner refers to this as a brochure for the RZR® 800, it is titled "Ranger RZR®," and Patent Owner has not explained cogently whether these

two designations refer to the same model. *See* Paper 45,[30] 8; Ex. 2082, 1. Patent Owner's further examples of advertising brochures suffer from the same shortcoming, namely that the advertising touts many unclaimed features. *See* PO Resp. 64–67.

In sum, the evidence establishes that the RZR® 800 had some commercial success. Several factors detract from the probative value of that success. First, it is unclear how much of that success is attributable to other models. Second, that success was realized in a dramatically expanding market with relatively few competing manufacturers. Third, in a market with an even greater number of competitors, other new entrants also enjoyed rapid initial growth in market share. In particular, the remainder of Polaris vehicles had comparable or slightly greater success than the RZR® 800.

Further, the value of this evidence is significantly diminished by the fact that Patent Owner primarily attributes this success to the low center of gravity of the RZR® 800, when this is not a claimed feature. Patent Owner's further contention that advertising demonstrates that some of the success is attributable to other claimed features (*e.g.*, the specified power-to-weight ratio) is weak in that the claimed features were only evidenced by a literal mention in advertising, with no further analysis. This evidence also has at best a weak connection to the commercial success because the advertising also touts many unclaimed features.

[30] The pages of Paper 45 are not numbered and we consider the cover to be page number 1.

3. Industry Praise

Patent Owner presents argument and evidence that the RZR® 800 was compared favorably to other models, had success in the racing circuit, and won several awards. PO Resp. 67–69.

Patent Owner contends that an article recognized the benefits of the '028 patent. *Id.* at 67–68 (citing Ex. 2031 ¶¶ 87, 100, 110; Ex. 2057). The cited portions of the Declaration of Mr. Jarosz provide detail regarding an article by Dave Beckstrom; however, neither the cited evidence nor Patent Owner's Response explains Mr. Beckstrom's position in the industry. *See* Ex. 2031 ¶¶ 87, 100, 110. Without such context, this information is of little value. Exhibit 2057, titled "2016 – Arctic Cat Side by Sides, www.arcticcat.com," is a download from Petitioner's website and it is unclear how this exhibit pertains to Patent Owner's assertions concerning the article in question.

Patent Owner contends that another article favorably compares the RZR® 800 to the Yamaha Rhino. PO Resp. 68 (citing Ex. 2031 ¶ 33; Ex. 2043). Paragraph 33 of Exhibit 2031 compares the center of gravity of the "2010 Ranger RZR®" to the Yamaha Rhino. It is unclear if this information is in the article referenced, and it is unclear if the "Ranger RZR®" is the same model as the "RZR® 800." Even assuming this information pertains to the RZR® 800, such information is of little or no use because, as detailed above, the challenged claims are not limited to a low center of gravity. Exhibit 2043 depicts Patent Owner's business locations worldwide and it is unclear how this information supports Patent Owner's contention concerning the above comparison.

Patent Owner contends that the '028 patent created the first "sports car" of the ATV world. PO Resp. 68 (citing Ex. 2031 ¶¶ 33–34, 65, 70, 72). None of the cited paragraphs refer to the RZR® 800 as the first "sports car" of the ATV world, and, thus, there is no evidence this phrase is something more than a self-proclaimed title. Further, Patent Owner has not explained cogently how such praise relates to a claimed feature.

Patent Owner contends that the low center of gravity, 50-inch width, front torsion bar, and power-to-weight ratio are repeatedly touted as important features. PO Resp. 68 (citing Ex. 2031 ¶¶ 33, 64, 67, 72, 87, 89, 92-98, 100, 102). As mentioned, praise for the low center of gravity is not attributable to a claimed feature. Paragraphs 33, 89, 92–98, 100, and 102 of Exhibit 2031 relate to Polaris advertising, which is not evidence of industry praise. The remaining cited paragraphs of Exhibit 2031 are discussed below.

Patent Owner characterizes the October 2007 issue of *ATV 4-wheel Action* as comparing the RZR® with the Yamaha Rhino and concluding that the RZR® has "nimble handling" and would walk all over the competition in the sport category. PO Resp. 68–69 (Ex. 2031 ¶ 64;[31] Ex. 2030 ¶¶ 34–36). At most, Patent Owner identifies general praise, and does not explain sufficiently how that praise is attributable to a claimed feature. Beyond this, the article praises many unclaimed features. *See, e.g.*, Ex. 2063, 58 (praising the dual-piston brake calipers), 60 (praising the towing capacity), 61 (praising both that the 4-wheel-drive system is available on-the-fly and the higher top speed), 64 (praising the hydraulic tilt mechanism of the steering wheel). Further, the article is critical of the RZR® 800 in some respects. For

[31] Paragraph 64 of Exhibit 2031 cites to the referenced article, which is found at Exhibit 2063.

example, although the article acknowledges the RZR® 800's lower center of gravity, the article determines that the Yamaha Rhino has some better handling characteristics. *See, e.g.*, Ex. 2063, 58 (the Yamaha Rhino feels more stable, and is "not as tippy as the RZR®"); *see also id*. at 65 (depicting the RZR® 800 and cautioning that it does not take much to flip at high speeds). The cited portion of Dr. Moskwa's Declaration discusses the role of center of gravity in ATV performance regarding the RZR® 800 and competitors. Ex. 2030 ¶¶ 34–36. This information serves to put the cited article in context, but does not add evidence of industry praise.

The September 2008 edition of *ATV 4-wheel Action* reviews the RZRS 800. Ex. 2066, 50–56.[32] Patent Owner does not explain sufficiently how the praise of this article is connected to a claimed feature or features. *See* PO Resp. 68 (citing Ex. 2031 ¶ 67). In fact, the RZRS has a 60-inch width, and therefore, the praise cannot be tied to the claimed 50-inch width or the 54-inch width. *Id.* at 50.

A May 2008 article in *Side x Side Action* compared the RZR® 800 to the Yamaha Rhino. Ex. 2069, 67 (cited at Ex. 2031 ¶¶ 72, 102). The article praises many unclaimed features of the RZR® 800 (*e.g.*, EFI, useful cargo bed, and passenger grab bar). *Id.* at 64, 66. The article observes that the two are very different vehicles: the RZR® a "play" vehicle and Rhino a great "all-around" vehicle. *Id.* at 67. The article concludes that the vehicle a person buys will be personality-driven. *Id.* This article is best characterized as praising both vehicles, rather than simply praising the RZR® 800.

[32] PO Resp. 68 cites to Exhibit 2031 ¶ 67, which in turn cites to Exhibit 2066, 50.

Relying upon Exhibit 2031, Patent Owner repeats the contention that the RZR® 800 met with widespread industry praise. PO Resp. 69 (citing Ex. 2031 ¶¶ 69–76, 99–103).

We analyze each of these cited paragraphs of Exhibit 2031, mindful of the terse explanation given in Patent Owner's Response. Paragraph 69 summarizes that the RZR® 800 received awards, but does not provide evidence of such. Paragraphs 70 and 100 deal with the Dave Beckstrom article that was previously discussed. Paragraphs 71 and 101 cite in turn to a *Field and Stream* article awarding the RZR® 800 the "Best of the Best" ATV 2007. *See* Ex. 2050, 76. This article credits a claimed feature, namely the 50-inch width, but also credits several unclaimed features (*e.g.*, 300 pounds gear capacity, range, adjustable steering wheel). *Id.* This article should be viewed from the perspective that in 2007, as discussed above, there were few manufacturers of recreational side-by-side ATVs (i.e., Yamaha). Paragraphs 72 and 102 cite to *Side x Side Action* Magazine's award of the *SxS of the Year* for 2008 to the RZR® 800. *See* Ex. 2069, 67. This award should be considered in the context that the RZR® was not the stand out winner, but rather that the Yamaha Rhino was a very close competitor. *Id.* ("[t]he Rhino is a great all-around vehicle that can hang right along with the RZR® out on the trails," the Rhino is a better-built, more thought-out machine while the RZR® is more youthful and energetic, "when it comes down to it, your personality will really determine which vehicle you will buy").

Paragraphs 74–76 cite in turn to evidence that in ATV racing, the Ranger RZR® won the "Best in the Desert" series three years in a row, and won the WORCS and GNCC championships. *See* Exs. 2055, 2072, 2073,

2074; *see also* Ex. 2031 ¶ 73 (citing Exs. 2070, 2071, which provide background information regarding off-road races). Patent Owner does not explain cogently how a claimed feature or features contributed to these wins or how the Ranger RZR® relates to the RZR 800®. *See* PO Resp. 69.

Paragraph 103 of Exhibit 2031 cites to Exhibit 2067 with praise for the great balance and handling of the RZR®. PO Resp. 69 (citing Ex. 2031 103, citing in turn to Ex. 2067). Patent Owner does not explain sufficiently how this praise is tied to a claimed feature because, as detailed above, Patent Owner attributes balance and handling to a low center of gravity, which is not a claimed feature.

Patent Owner's evidence of industry praise is not uniform. The January 2009, article in *ATV Rider*™ is representative of our characterization of the RZR® 800's position in the industry. *See* Ex. 2054. The article provides the opinion of several reviewers with some preferring the Rhino and some preferring the RZR® 800. One reviewer summed it up well by saying, "[b]ased on all the praise bestowed upon the Polaris RZR®, it would seem the Yamaha Rhino 660 is soon to be extinct-that it's slow, outdated and boring. Not even close." *Id.* The reviewer goes on to explain why the Rhino will remain competitive. *Id.*

Here, as with the evidence of commercial success, Patent Owner primarily attributes the industry praise to a low center of gravity, but that is not a claimed feature. The only connection Patent Owner makes to a claimed feature is to the 50–inch, trail-complaint width. This connection is very weak because the trail-compliant width is just one of many praised features and because Patent Owner mistakenly asserts that a low center of gravity is a prerequisite to a trail-compliant width.

With regard to racing success, Patent Owner has not effectively demonstrated any connection to a claimed feature.

(3) Conclusion

We have weighed Patent Owner's evidence of secondary considerations and, on the trial record, we attribute little weight to that evidence. We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 88 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan and Hill.

Further, in the analysis of each ground of unpatentability below, we considered explicitly these secondary considerations in reaching our conclusions concerning each dependent claim.

d) Claims 94, 97, and 99

Claims 94, 97, and 99 depend from claim 88. Claim 94 recites "a low point of the seating surfaces is below a top of the engine." Claim 97 recites that the ATV further comprises "a front suspension coupling the front wheels to the front frame portion." Claim 97 recites that the ATV further comprises "a rear suspension coupling the rear wheels to the rear frame portion."

Hill discloses seats having a low point below the top of the engine. Pet. 48; Ex. 1010, Figs. 1, 2; Ex. 1001 ¶¶ 66–67. A person of ordinary skill in the art would have modified Nechushtan to position the seats, as disclosed by Hill, to contribute to lowering the vehicle's center of gravity, a desirable characteristic for ATVs. Pet. 34, 36, 48–49; Ex. 1001 ¶ 158.

Nechushtan discloses a front suspension coupling the front wheels to the front frame portion, and a rear suspension coupling the front wheels to the front frame portion. Pet. 49–50; Ex. 1008, Fig. 1

Patent Owner does not present separate argument for these claims. We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 94, 97, and 99 are unpatentable under 35 U.S.C. § 103(a) over Nechushtan and Hill.

2. Obviousness over Nechushtan, Hill, and Furuhashi

Petitioner contends that claims 90, 93, and 95 would have been obvious over Nechushtan, Hill, and Furuhasi. Pet. 50–54.

a) Claim 90

Claim 90 depends from claim 88 and recites an ATV "further comprising a fuel tank, the spaced-apart seating surfaces including a driver seating surface and a passenger seating surface, the fuel tank being positioned below one of the seating surfaces."

Furuhashi discloses a fuel tank (fuel tank 120) below the seating surface (cushion 81). Ex. 1009, 12:23–29, Fig. 19.

Petitioner contends that a person of ordinary skill would have known that: Nechushtan places the engine in the rear of the vehicle, it is desirable to distribute weight other than in the front of the vehicle (so that the vehicle may more easily navigate difficult terrain), and positioning the fuel tank in Nechushtan's central tub portion would require little modification. Pet. 50–51; Ex. 1001 ¶ 168; Ex. 1008, Fig. 2. Petitioner reasons that knowing this, it would have been obvious to position the fuel tank under a seat, as disclosed by Furuhashi. Pet. 50–51; Ex. 1001 168.

Patent Owner argues that "Petitioner articulates no rationale" for putting the fuel tank under Nechushtan's front seats as opposed to a host of other locations. PO Resp. 45. We disagree. Petitioner articulates a rationale, and Patent Owner's conclusory assertion to the contrary is

unpersuasive. We agree with Petitioner that the fact that the fuel tank may have been placed in other locations does not demonstrate the nonobviousness of the claimed subject matter. Pet. Reply 18–19.

According to Patent Owner, Dr. Davis fails to account for two facts: one, that some vehicles have fuel tanks rearward of the seats, elevated above the seat bottoms; and two, that locating the tank on one side would cause fluctuating weight distribution. *Id.* (citing Ex. 2030, 94–95; Ex. 2020, 52:17–21). To the contrary, Dr. Davis accounted for placement of the fuel tank behind the seats, because Dr. Davis asserts explicitly that a person of ordinary skill would have recognized the proposed combination had the engine behind the seats. *See* Pet. 50–51; Ex. 1001 ¶ 168. Furthermore, we discern that fluctuating weight distribution is a design tradeoff. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine."). Patent Owner's argument is unpersuasive because it does not balance the negative aspects of fluctuating weight distribution with the benefits identified by Petitioner. *See Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) ("The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.").

Patent Owner contends that Petitioner did not specify if the fuel tank would be placed under the front seats or the rear seats, and according to Patent Owner, Petitioner's reasoning would have suggested the rear seats. PO Resp. 46. The premise of Patent Owner's argument is incorrect because

Petitioner specifically referenced Nechushtan's front seats. *See* Pet. 50 (referring to Nechushtan's driver and passenger seating surfaces).

Patent Owner contends that Petitioner used impermissible hindsight, because Petitioner reasoned that lowering the seats to lower the center of gravity was beneficial, and placing the fuel tank under a seat would be counter that principle. PO Resp. 46–47. Patent Owner's argument suggests that a person of ordinary skill would believe that a design must have the lowest center of gravity possible. To the contrary, a person of ordinary skill would recognize that a lower center of gravity is a generally desirable feature that is balanced with other design considerations. *See generally* '1427 IPR, Paper 58 at 18 (addressing a similarly flawed argument by Patent Owner).

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 90 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Furuhashi.

b) Claim 93

Claim 93 depends from claim 88 and recites "a battery positioned below one of the seating surfaces."

Furuhashi discloses a battery (battery 16) supported on the right of main frame 1. Ex. 1009, 5:35–43. As stated above, Furuhashi's fuel tank (fuel tank 120) is positioned below the seating surface (cushion 81). Ex. 1009, 12:23–29, Fig. 19. Furuhashi's battery is positioned approximately at the same position, longitudinally and laterally, opposite the fuel tank. *Id.* at Fig. 2 (fuel tank 120 is not labeled in Figure 2, but surrounds reference numeral 95). Therefore, Furuhashi discloses a battery positioned under the

vehicle's seat. *See* Pet. 51–52; Ex. 1001 ¶ 173; *contra* PO Resp. 47; Ex. 2030 ¶ 98.

Patent Owner essentially applies the arguments for the fuel tank of claim 90 in support of the battery of claim 93. PO Resp. 47–50. Our analysis there is applicable here.

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 93 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Furuhashi.

c) Claim 95

Claim 95 depends from independent claim 88 and adds "a shift lever for the transmission extending through a console positioned between seat bottoms."

Furuhashi discloses a shift lever (L_{SF}) to the right of the seat (S). Ex. 1009, 14:43–45, Fig. 27; Pet. 52–54. We find that consoles were used widely in motor vehicles, and it was known to position a shift lever in a console between seat bottoms for the advantage of easy and safe access to the lever for the driver. Ex. 1001 ¶¶ 165–166 & n.4.

Patent Owner does not present separate argument for this claim. We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 95 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Furuhashi.

3. Obviousness over Nechushtan, Hill, and Hart

Petitioner contends that claims 91 and 92 would have been obvious over Nechushtan, Hill, and Hart. Pet. 54–56.

Claim 91 depends from claim 88 and recites, "wherein the vehicle width is less than 54 inches." Claim 92 depends from claim 91 and recites, "wherein the vehicle width is approximately 50 inches."

As mentioned above, Hart discloses a side-by-side ATV having a width of 48 inches. Ex. 1004 ¶ 71; Pet. 11–12, 55.

Petitioner reasons that a person of ordinary skill would have modified the Nechushtan and Hill combination to have a vehicle width of approximately 50 inches, as disclosed by Hart, because it would permit the vehicle to traverse relatively narrow spaces and to comply with state laws mandating such a width. Pet. 54–56; Ex. 1001 ¶¶ 179–180; Ex. 1007, 12.

Patent Owner contends that nothing in the record suggests anyone identified a need for a 50-inch sport recreational side-by-side vehicle. PO Resp. 50 (mentioning the Hart Hunter as focused on utility rather than sports driving). To the contrary, as background, the '028 patent states that most trails on public lands have a mandated maximum width requirement (e.g. 50 inches). Ex. 1002, 1:29–34; *see also* Pet. 56 (citing this portion of the '028 patent); Ex. 1001 ¶ 178.

Petitioner's ground of unpatentability includes the following statement, "Hart teaches a side-by-side all-terrain vehicle fabricated through conversion of a traditional, four-wheel-drive, saddle-seat vehicle to a side-by-side all-terrain vehicle such as that claimed in the '028 patent." Pet. 55. Patent Owner contends this statement is wrong, because Dr. Davis admits that the Hart Hunter had a different architecture. PO Resp. 52 (citing Ex. 2020, 178:24–179:3). Patent Owner overstates what Dr. Davis admitted. Dr. Davis only acknowledged that the Hart Hunter's engine was mounted at least partially under the seats. The portion of the Petition that Patent Owner

asserts is wrong makes no mention of engine position relative to the seats. Petitioner correctly characterizes the Hart Hunter as a side-by-side ATV. *See* Ex. 1004, 69 (stating the vehicle was a "4x4," and each of the three photos depicting the side-by-side configuration).

Patent Owner contends that Petitioner has oversimplified the modification processes and has not demonstrated a reasonable expectation of success. PO Resp. 50. In particular, Patent Owner emphasizes that the Hart Hunter and Ervin (a background reference mentioned by Petitioner) each disclose a vehicle that is significantly different from the claimed configuration. *Id.* at 51–52. Patent Owner also emphasizes that Petitioner's demonstration regarding a reasonable expectation of success "must" be made explicit. *Id.* at 52 (citing *KSR*, 550 U.S. at 418).

As an initial matter, we disagree with Patent Owner's application of *KSR*. The cited portion of *KSR* was not discussing a reasonable expectation of success. Rather, in the cited portion of *KSR*, when discussing obviousness analysis of certain claimed subject matter, the court stated that "[t]o facilitate review, this analysis should be made explicit." *KSR*, 550 U.S. at 418.

Regarding Hart and Ervin, Patent Owner's assertion is essentially that the Hart Hunter and Ervin would not instruct a person of ordinary skill how to reduce the width of the Nechushtan and Hill combination. Such a contention is inapposite because Petitioner did not rely on those references in that manner. Rather, Petitioner contends that Ervin and the Hart Hunter illustrate that it was known to make ATVs in narrower widths. Patent Owner has to some extent acknowledged as much. *See* Ex. 1002, 1:25–27 (disclosing that "most side-by-side ATVs have a width of at least 54 inches,"

implying that some ATVs have a lesser width). We agree with Petitioner's response to Patent Owner's argument. In particular, we agree that Patent Owner has ignored the level of skill in the art, and that the proper test is not whether Hart or Ervin could be bodily incorporated into the Nechushtan and Hill combination. *See* Pet. Reply 21–24.

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 91 and 92 are unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Hart.

4. Obviousness over Nechushtan, Hill, and Nash

Petitioner contends that claim 96 would have been obvious over Nechushtan, Hill, and Nash. Pet. 56–57.

Claim 96 depends from claim 88 and recites, "wherein the transmission is coupled to the engine through a continuously variable clutch."

Nash discloses an off-road vehicle having a continuously variable clutch in the form of a V-belt transmission mechanism. Ex. 1011 ¶¶ 3, 52; Ex. 1001 ¶¶ 182–183. Continuously variable transmissions (CVTs) provide a continuous variation in gear ratio that provides for a smoother ride and increased responsiveness of transmission operation. Ex. 1001 ¶ 183. A person of ordinary skill would have incorporated a CVT to obtain these benefits.

Patent Owner does not present separate argument for this claim. We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 96 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Nash.

5. Obviousness over Nechushtan, Hill, and Fujimori

Petitioner contends that claims 98 and 100 would have been obvious over Nechushtan, Hill, and Fujimori. Pet. 57–59.

a) Claim 98

Claim 98 depends from claim 97 and recites, "further comprising a front stabilizer bar supported by the front frame portion and coupled to the front suspension, the front stabilizer bar being configured to transmit at least a portion of an upward force exerted on one of the front wheels to the other of the front wheels." Claim 100 depends from claim 99, which depends in turn from claim 98, and recites, "further comprising a rear stabilizer bar supported by the rear frame portion and coupled to the rear suspension, the rear stabilizer bar being configured to transmit at least a portion of an upward force exerted on one of the rear wheels to the other of the rear wheels."

Fujimori discloses a torsion bar in the form of an adjustable stabilizer assembly. Ex. 1013, Abstract, 1:8–9. The use of torsional stabilizer bars, both front and rear, was well-known in the automotive industry to decrease roll or lean of the vehicle body during a cornering maneuver. *Id.* at 1:13–14, 1:20–21; Ex. 1001 ¶¶ 185–186; Pet. 57.

Patent Owner argues that none of the references disclose a front stabilizer bar for an ATV. PO Resp. 57. This argument is nonresponsive because Petitioner does not contend that Fujimori discloses a stabilizer bar for an ATV; rather, Petitioner contends that Fujimori's automotive torsion bar can be utilized in an ATV.

Patent Owner contends that Fujimori discloses stabilizer bars rather than front stabilizer bars. *Id.* This argument is also nonresponsive.

Petitioner relied upon Dr. Davis's testimony that stabilizer bars such as Fujimori's were used on the front and rear of automobiles. *See* Ex. 1001 ¶ 185 ("both front and rear," cited at Pet. 57–58)

Patent Owner contends that Petitioner uses impermissible hindsight because there is no evidence that there was an art-recognized problem with ATV stability. *Id.* at 58. Similarly, Patent Owner contends that addition of a stabilizer bar can contribute to understeer and absent proof of a known stability problem, a person of ordinary skill in the art would have no reason to make the proposed modification. *Id.* at 58–59

Patent Owner is arguing, again, that the proposed combination must seek to solve the same problem solved by the '028 patent, and such is not the law. Further, we are not persuaded by a contention that the use of a stabilizer bar has drawbacks. The evidence shows that the stabilizer bars were known in the automotive industry and Patent Owner does not identify any design concern for use of a stabilizer bar that is different in an ATV than in an automobile. This is true even if Patent Owner was the first to apply a stabilizer bar to an ATV. *See* PO Resp. 57–58.

We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claims 98 and 100 are unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Fujimori.

6. Obviousness over Nechushtan, Hill, and Kruas

Petitioner contends that claim 101 would have been obvious over Nechushtan, Hill, and Kraus. Pet. 59–60.

Claim 101 depends from claim 88 and recites, "further defining a power to weight ratio, the power to weight ratio being equal to at least 0.045/1 horsepower/pound."

At the time of the invention, it was known that engine and vehicle size can be selected to provide a power-to-weight ratio that achieves the desired performance. Pet. 59; Ex. 1001 ¶¶ 124–125. Kraus discloses a vehicle having a high power-to-weight ratio of 0.5 horsepower per pound, and that a known method of increasing this ratio is to increase engine size in relation to vehicle weight. Ex. 1012, 4:63–69; Pet. 59; Ex. 1001 ¶ 126. Petitioner reasons, and we agree, that a person of ordinary skill in the art would have increased the power-to-weight ratio of the Nechushtan and Hill combination to achieve the known benefit of increased performance. Pet. 59–60.

Patent Owner does not present separate argument for this claim. We conclude that Petitioner has demonstrated, by a preponderance of the evidence, that claim 101 is unpatentable under 35 U.S.C. § 103(a) over Nechushtan, Hill, and Kraus.

V. ORDER

For the reasons given, it is:

ORDERED that claims 88, 94, 97, and 99 have been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan and Hill;

FURTHER ORDERED claims 90, 93, and 95 have been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan, Hill, and Furuhashi;

FURTHER ORDERED claims 91 and 92 have been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan, Hill, and Hart;

FURTHER ORDERED claim 96 has been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan, Hill, and Nash;

FURTHER ORDERED claims 98 and 100 have been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan, Hill, and Fujimori;

FURTHER ORDERED claim 101 has been shown by a preponderance of the evidence to be unpatentable as obvious over Nechushtan, Hill, and Kraus;

FURTHER ORDERED that the Motions to Seal are granted-in-part and denied-in-part as noted herein; and

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

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