Filed on behalf of Ravin Crossbows, LLC
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RAVIN CROSSBOWS, LLC,
Petitioner,

v.

MCP IP, LLC,
Patent Owner.

Case IPR2024-00522
U.S. Patent No. 8,683,989 B1

PETITIONER RAVIN CROSSBOWS, LLC'S NOTICE OF APPEAL

via E2E
Patent Trial and Appeal Board

via Priority Mail Express®
Director of the United States Patent and Trademark Office
c/o Office of the General Counsel, 10B20
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

via CM/ECF
United States Court of Appeals for the Federal Circuit

INTRODUCTION

Ravin Crossbows, LLC appeals the Patent Trial and Appeal Board's Final Written Decision entered on September 9, 2025 (Paper 37) (the "Final Written Decision") in the above-captioned *inter partes* review of United States Patent No. 8,683,989. This notice is timely filed within 63 days of the Final Written Decision. 37 C.F.R. § 90.3(a)(1).

RAVIN CROSSBOWS, LLC'S APPEAL

Please take notice that under 35 U.S.C. §§ 141(c), 142, 319, 37 C.F.R. §§ 90.2(a), 90.3(a), and Federal Rule of Appellate Procedure/Federal Circuit Rule 15, Ravin Crossbows, LLC hereby appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision and all underlying decisions and orders in this action on which that decision is based.

RAVIN CROSSBOWS, LLC'S ISSUES ON APPEAL

Ravin Crossbows, LLC's issues on appeal include challenging at least (*see* 37 C.F.R. § 90.2(a)(3)(ii)):

(i) the Board's determination that Ravin Crossbows, LLC did not establish that claims 1-4 and 7-19 of U.S. Patent No. 8,683,989 are unpatentable over U.S. Patent No. 8,205,607 to Darlington in view of U.S. Patent Application Publication No. 2008/0135032 to Islas; and

(ii) any findings or determinations supporting or related to that issue, including, but not limited to, issues relating to the priority date of U.S. Patent No. 8,683,989, as well as all other issues decided adversely to Ravin Crossbows, LLC in any orders, decisions, rulings, or opinions in this proceeding.

Simultaneously with this submission, Ravin Crossbows, LLC is filing a true and correct copy of this Notice of Appeal with the Director of the United States Patent and Trademark Office and a true and correct copy (or copies) of the same, along with the required filing fee, with the Clerk of the United States Court of Appeals for the Federal Circuit as set forth in the accompanying Certificate of Filing.

Dated: November 10, 2025

Respectfully submitted,

ERISE IP, P.A.

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ATTORNEYS FOR PETITIONER

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 90.2(a)(1) and 104.2(a), I hereby certify that, in addition to being filed electronically through the Patent Trial and Appeal Board's End to End (PTAB E2E) system, a true and correct original version of the foregoing Petitioner's Notice of Appeal is being filed by Priority Express Mail on November 10, 2025, with the Director of the U.S. Patent and Trademark Office, at the following address:

Director of the U.S. Patent and Trademark Office
c/o Office of the General Counsel
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Pursuant to 37 C.F.R. 90.2(a)(2) and Federal Circuit Rule 15(a)(1), and Rule 52(a), (e), I hereby certify that a true and correct copy of the foregoing Petitioner's Notice of Appeal is being filed in the United States Court of Appeals for the Federal Circuit using the Court's CM/ECF filing system on November 10, 2025, and the filing fee is being paid electronically using pay.gov.

I hereby certify that on November 10, 2025, I caused a true and correct copy of the foregoing Petitioner's Notice of Appeal to be served via email on the following counsel for Patent Owner:

Joshua A. Griswold (IPR56402-0005IP1@fr.com)
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Matthew A. Colvin (IPR56402-0005IP1@fr.com)

Dated: November 10, 2025

Respectfully submitted,

BY: /s/ *Adam P. Seitz*
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COUNSEL FOR PETITIONER

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Paper 37
Date: September 9, 2025

BOARD AND PARTIES ONLY
CONTAINS PROTECTIVE ORDER MATERIAL

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RAVIN CROSSBOWS, LLC,
Petitioner,

v.

MCP IP, LLC,
Patent Owner.

IPR2024-00522
Patent 8,683,989 B1

Before MEREDITH C. PETRAVICK, MITCHELL G. WEATHERLY, and ARTHUR M. PESLAK, *Administrative Patent Judges.*

PESLAK, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Ravin Crossbows, LLC ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–4 and 7–19 ("the Challenged Claims") of U.S. Patent No. 8,683,989 B1 (Ex. 1001, "the '989 patent") supported by a Declaration of Joshua Lange, P.E. (Ex. 1003). Paper 2 ("Pet."). MCP IP, LLC ("Patent Owner") filed a Preliminary Response supported by a Declaration of Charles F. Reinholtz, PhD (Ex. 2007). Paper 6 ("Prelim. Resp."). On September 12, 2024, we instituted this *inter partes* review as to all challenged claims and all grounds presented in the Petition. Paper 9 ("Dec.").

After institution, Patent Owner filed a Response to the Petition (Paper 13, "PO Resp.") supported by a Second Declaration of Dr. Charles F. Reinholtz, PhD. Ex. 2018. Petitioner filed a Reply ("Pet. Reply"). Paper 24. Patent Owner filed a Sur-reply ("Sur-reply"). Paper 28. An oral hearing was held on June 12, 2025, and the transcript is entered into the record. Paper 36 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims of the '989 patent. For the reasons discussed below, we determine Petitioner does not establish by a preponderance of the evidence that any of the Challenged Claims are unpatentable.

A. Related Matters

Petitioner states "[t]he '989 Patent is presently the subject of a patent infringement lawsuit filed against Petitioner in the United States District Court for the Western District of Wisconsin, *MCP IP, LLC v. Ravin Crossbows, LLC*, Case No. 3:23-cv-00142-JDP (WDWI)." Pet. 98.

Patent Owner also states "[t]he '989 Patent was the subject of the following prior actions, now complete: *MCP IP, LLC v. .30-06 Outdoors et al.*, 2-21-cv-00581 (SDOH), filed February 9, 2021; *MCP IP, LLC v Bowtech, Inc.*, 6-18-cv-01087 (DOR), filed June 21, 2018; and *MCP IP, LLC v. Bowtech, Inc.*, 6-17-cv-01896 (DOR), filed November 27, 2017." Paper 5, 1.

B. Real Parties--in--Interest

Petitioner identifies itself as the sole real party--in--interest. Pet. 98. Patent Owner identifies itself as the sole real party--in--interest. Paper 5, 1.

C. Summary of the '989 Patent (Ex. 1001)

The '989 patent is titled "Archery Bow Cam." Ex. 1001, code (54). The inventor named on the '989 Patent is Mathew A. McPherson. *Id.* at code (75). The '989 patent's application, No. 12/895,610, was filed September 30, 2010. *Id.* at codes (21), (22). The '989 patent also identifies a related provisional application, No. 61/247,473, filed Sept. 30, 2009 (the "'473 Provisional"). *Id.* at code (60).

The '989 patent "relates generally to archery bows and more specifically to a cam configuration suitable for use in bows." *Id.* 1:12–14. The Specification states that "variable aspects of [a compound] bow, such as draw weight and draw length," are "known in the art" but "[t]here remains a need for novel bow and cam designs that provide for greater adjustability . . . than prior art designs," i.e., that "allow for a greater range of draw weights and draw lengths." *Id.* at 1:23–28.

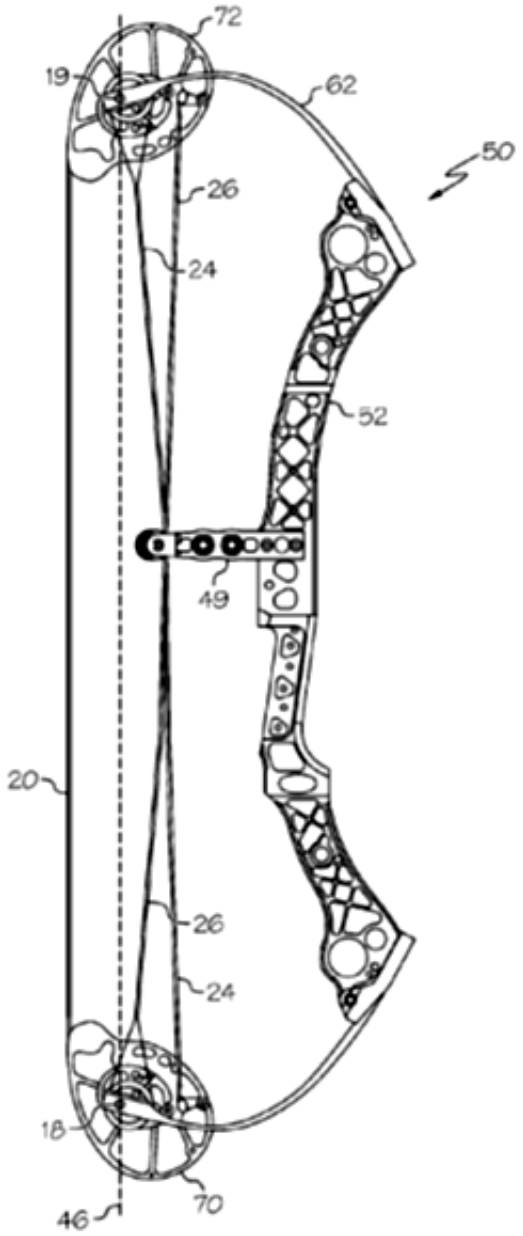

Figure 7, reproduced at right, "shows an embodiment of a compound archery bow." Figure 7 illustrates bow 50 comprising riser 52, first and second limbs 60,[1] 62 supporting first and second rotatable members 70, 72 on first and second axles 18, 19, a drawstring 20, a first power cable 24, and a second power cable 26 extending between first and second rotatable members. *Id.* at 3:26–42. Each of the first and second rotatable members 70 and 72 comprises a cam[2] and is configured as a "mirror image" of the other. *Id.* at 3:32–33, 3:42–45, 4:64–66, Fig. 7. The drawstring 20 extends between the cams 70, 72. *Id.* at 3:61–64. Pulling on the drawstring 20 will cause (not shown) inward flexing of the limbs 60, 62 and respective rotating of the cams 70, 72 (as described, below, for Figures 1 and 2). *Id.* at 3:51–54. In Figure 7, bow 50 is shown in its "brace condition," i.e., "at-rest condition." Ex. 1001, 3:50–51. When the drawstring 20 is completely pulled, the bow 50 has reached its "fully-drawn condition." *Id.* at 3:54–55.

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[1] Bottom "limb 60" is described as-such but not labeled in Figure 7.

[2] The Specification of the '989 patent uses the term "cam," described in connection with Figures 1 and 2, interchangeably with "rotatable member" described in connection with Figure 7. *See e.g.*, Ex. 1001, 4:64–5:1, 5:8–10, Figs. 1, 2, 7.

The force required to hold drawstring 20 in the fully-drawn condition is lessened (as compared to the force required to pull the drawstring 20 toward the fully-drawn condition) by the "compounding configuration of the cam(s) and power cable(s)." *Id.* at 3:54–57.

Figures 1 and 2, are reproduced at right. Figure 1 is "an embodiment of a cam suitable for use in a bow . . . in a brace position." Ex. 1001, 2:63–64. Figure 2 is "the cam of FIG. 1 in a drawn orientation." Ex. 1001, 2:65. The cam 10 shown in Figures 1 and 2 correlates to the first rotatable member 70 of Figure 7. Ex. 1001, 3:58–61. While the bow 50 is in the braced condition (Figure 1), the axle 18 of cam 10 defines an axle plane 46 (along the axle 18 and orthogonal to the cam 10) separating each cam 10 into a first part 47 and second part 48. Ex. 1001, 3:30–31, 4:53–55. The first part 47 includes a capstan 30 and terminal 32. *Id.* 4:55–56. The second part includes the exit location 22 of the drawstring 20. *Id.* at 4:56–57. The shortest distance between the terminal 32 and the axle plane 46 is greater than the shortest distance between the capstan 30 and the axle plane 46. *Id.* at 4:57–63.

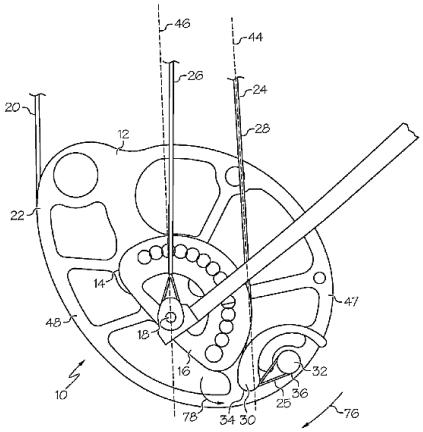

FIG. 1

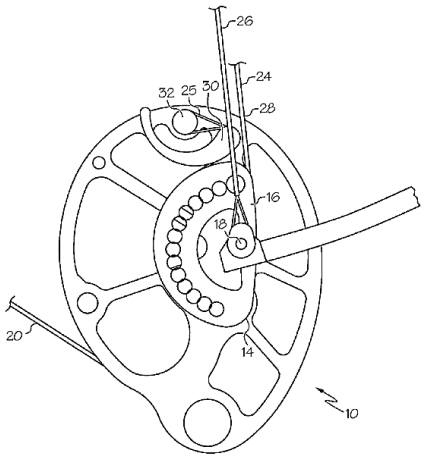

FIG. 2

As the drawstring 20 is pulled, i.e., as the bow 50 transitions from the braced condition (Figure 1) to the drawn condition (Figure 2), cam 10 rotates in the first rotational direction 76 (clockwise). Ex. 1001, 4:39–43. As seen in Figure 3 reproduced at right, cam 10 rotates approximately 225 degrees as the bow 50 moves from the braced condition to the drawn condition. *Id.* at 5:9–10. Figure 3 "is a combination of FIGS. 1 and 2, which shows how the cam rotates." Ex. 1001, 2:66–67.

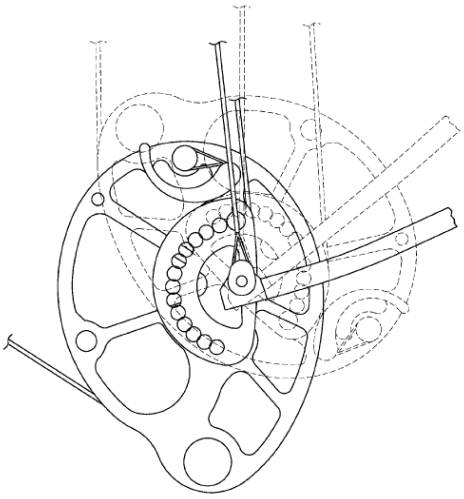

FIG. 3

The first power cable 24 has a first end anchored at the axle 19 of the second rotatable member 70 (i.e., at the top of limb 62 as shown in Figure 7) and a second end (terminal portion 36) anchored at the terminal 32 of the bottom cam 10 (i.e., at the bottom of limb 60 as shown in Figures 1–2). Ex. 1001, 3:33–37, 4:25–26. First power cable 24 has an elongate straight portion 28 defining a cable plane 44. *Id.* at 4:23–24, 4:46–47, Fig. 1. Although not explicitly described in the Specification of the '989 patent, based on Figure 7, first power cable 24 is formed with a loop-like configuration on the first end. *Id.* at Fig. 7. The loop-like configuration engages a generally circular structure around axle 19. *Id.* at Figs. 1, 2, 7.

First power cable 24 contacts cam track 14 of adjustment module 16 in dependence upon the condition of the bow 50 (braced or drawn) as shown by Figures 1 and 2. Ex. 1001, 4:21–28, 4:39–41, 5:10–14. Generally (regardless of whether the bow 50 is braced or drawn), first power cable 24 contacts the cam track 14 of the adjustment module 16 until reaching the near-abutting portions of the adjustment module 16 and capstan 30. Capstan

portion 34 of first power cable 24 wraps around the capstan 30, and extends to the terminal post 32. *Id.* at 4:21–45.

While the bow 50 is in the braced condition (Figure 1), first power cable 24 spans along a portion of adjustment module 16 and in a first direction toward capstan 30, and then wraps around capstan 30 to extend to the terminal post 32 along another direction opposite of the first direction. Ex. 1001, 4:33–45. While the bow 50 is drawn, the first power cable 24 wraps almost around the adjustment module 16 and then wraps around the capstan 30 to extend to the terminal post 32 along another direction opposite of the second direction. *Id.* at 5:10–14. Thus, the first power cable 24 "wraps around the capstan 30 and extends toward the terminal post 32 in a . . . rotational direction 78 . . . that is opposite" the rotational direction 76 of the cam 10 while the bow 50 is being drawn. *Id.* at 4:39–45.

The '989 patent asserts the following advantages of this wrapping:

> As shown in FIG. 2, the capstan 30 comes close to contacting the power cable 24, resulting in a portion [of] the power cable 24 almost contacting itself. Such contact is often a limiting factor in cam design, which limits the amount of rotation that can be achieved. Having the cable 24 wrap around the capstan 30 and extend in a direction opposite of cam rotation provides for some added draw capability. From FIG. 2, it is clear that if the power cable 24 wrapped in the same direction as cam rotation, and the terminal post 32 were located on the other side of the capstan 30, rotation capability would be substantially diminished.
>
> In some embodiments, the use of a capstan 30 is beneficial because the location of the power cable 24 as it wraps about the capstan 30 is effectively fixed. In various cam designs where a capstan 30 is not used, the power cable 24 often extends directly to the terminal post 32, allowing the power cable to rotate about the terminal post 32. Thus, the capstan 30 can be used to secure

> the power cable 24 such that it does not rotate about the terminal post 32. Also, a power cable 24 often splits to form a loop 25 at the terminal post 32. When an arrow is fired, high forces and vibrations are typically present in the cable 24. The capstan 30 causes reaction forces to be applied to portions of the cable 24 having a full cross-sectional area, whereas if the capstan 30 were omitted, reaction forces could be applied to the smaller cross-sectional area loop 25 portion.

Ex. 1001, 5:15–39.

D. Illustrative Claim

Claim 1 is reproduced below with Petitioner's annotations[3]:

> 1. (pre) An archery bow having a brace condition and a drawn condition, the archery bow comprising:
>
> (a) a riser;
>
> a first limb and a second limb supported by the riser;
>
> (b)(i) a first rotatable member supported by the first limb on a first axle, a second rotatable member supported by the second limb on a second axle, (b)(ii) the first rotatable member comprising a drawstring track, (b)(iii) a cam track, (b)(iv) a capstan and a terminal, (b)(v) wherein said drawstring track is oriented in a first cam plane and said cam track is oriented in a second cam plane offset from said first cam plane;
>
> (c) a drawstring extending between the first rotatable member and the second rotatable member;
>
> (d)(i) a power cable attached to said terminal and extending toward the second limb, (d)(ii) said power cable comprising an elongate straight portion located near said first rotatable member, a capstan portion in contact with said capstan and a terminal portion in contact with said terminal;
>
> (e) wherein, in the brace condition, the power cable wraps around the capstan in a first rotational direction as the

[3] We use Petitioner's annotations herein for ease of reference.

> power cable is traversed from the elongate straight portion to the terminal portion; and
>
> (f) when the bow is drawn from the brace condition, the first rotatable member rotates in a second rotational direction that is opposite the first rotational direction and
>
> (g) wherein, in the brace condition, the elongate straight portion defines a plane, wherein said first axle and said terminal are located on opposite sides of said plane.

Ex. 1001, 6:48–7:8.

E. Asserted Ground of Unpatentability

Petitioner, supported by the declaration of Joshua Lange, P.E. (Ex. 1003), asserts one ground of unpatentability (Pet. 4–5)[4]:

Claims Challenged	35 U.S.C. §	References/Basis
1–4, 7–9	§ 103(a)	Darlington,[5] Islas[6]

II. ANALYSIS

A. Level of Ordinary Skill in the Art

In assessing the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation

[4] We apply the pre-AIA version of 35 U.S.C. § 103 because the claims at issue have an effective filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"). *See* Ex. 1001, code (22).
[5] U.S. Pat. 8,205,607 B1, issued June 26, 2012 (Ex. 1004, "Darlington").
[6] U.S. Pat. Appl. Pub. 2008/0135032 A1, published June 12, 2008 (Ex. 1005, "Islas").

omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) ("A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.").

Petitioner asserts a person having ordinary skill in the art on the priority date of the '989 patent:

> would have had (i) a Bachelor of Science degree in mechanical engineering, materials science, or a similar technical field; (ii) a working knowledge of and/or experience with projectile weapon (e.g., archery bow) operation and performance; and (iii) two to four years of experience with designing and manufacturing of consumer products.

Pet. 3–4 (citing Ex. 1003 at ¶¶ 25–28).

Patent Owner does not challenge Petitioner's definition. *See generally* PO Resp.

We apply Petitioner's uncontested definition because it appears consistent with the problems addressed in the '989 patent and the prior art.

B. Claim Construction

In an *inter partes* review proceeding, a patent claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Our rule adopts the same claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard, the words of a claim are generally given their "ordinary and customary meaning," which is the meaning the term would have to a person of ordinary skill at the time of the invention. *See Phillips*, 415 F.3d at 1312–13. In construing

claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Id.* at 1315–17.

Neither party proposes an express construction for any claim terms. Pet. 3; *see generally* PO Resp. We agree that no claim terms require express construction for purposes of this Decision. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

C. Prior Art Status of Darlington

Petitioner applies the date of filing of the provisional application referenced in the '989 patent of September 30, 2009, as the priority date for the Challenged Claims. Pet. 2. Petitioner contends that Darlington qualifies as prior art under 35 U.S.C. § 102(e) because it was filed June 30, 2009, and published June 26, 2012. *Id.* at 4 (citing Ex. 1004).

Patent Owner contends that "Petitioner cannot show that the Challenged Claims are obvious because Darlington . . ., the primary reference in Petitioner's sole ground of unpatentability, does not qualify as prior art." PO Resp. 5. According to Patent Owner, "Darlington's earliest priority date is its filing date on June 30, 2009," and that "inventor Mathew McPherson designed, built, and commercialized the invention claimed by each and every Challenged Claim in 2008, before Darlington's §102(e) (pre-AIA) date." *Id.* at 5–6 (citing Ex. 1004; Ex. 2006; Ex. 2016; Ex. 2017; Ex. 2018).

Petitioner has "the burden of persuasion to prove unpatentability by a preponderance of the evidence, and this burden never shift[s]" to Patent

Owner. *Dynamic Drinkware, LLC v. Nat. Graphics*, 800 F.3d 1375, 1379 (Fed. Cir. 2015). By alleging that Darlington is prior art to the Challenged Claims under 35 U.S.C. § 102(e), Petitioner satisfied its "initial burden of production." *Dynamic Drinkware*, 800 F.3d at 1379. In order to satisfy the ultimate burden of persuasion to prove unpatentability by a preponderance of the evidence Petitioner must persuade us "that the invention was not actually reduced to practice as argued" by Patent Owner. *Id.*

The Federal Circuit instructs that: "[t]o demonstrate an actual reduction to practice, the applicant must have: (1) constructed an embodiment or performed a process that met all the limitations of the claim and (2) determined that the invention would work for its intended purpose." *In re Steed*, 802 F.3d 1311, 1318 (Fed. Cir. 2015). "That is, to reduce any particular claim to practice, the applicant must have constructed an operational embodiment within the scope of that claim." *Nintendo of America Inc. v. iLife Technologies, Inc.*, 717 Fed. Appx. 996 (Fed. Cir. 2017) (addressing *Steed's* above, two-prong standard). The Board may find an actual reduction to practice based on, for example, "testimony of the inventors, corroborating witnesses, and corroborating documentary evidence" (*id.* at 1002) if "[t]his evidence, taken together, is sufficient for a reasonable mind to conclude that the prototype created by the inventors . . . was within the scope of claims . . . and would work for its intended purpose." *Id.* at 1003. But if "[t]he prototype has not been shown to meet all the limitations of the[] claims, . . . the record thus lacks evidence sufficient to support the . . . conclusion [of an actual reduction to practice]." *Id.* at 1004 (citing *Steed*, 802 F.3d at 1318).

"[A]n inventor's testimony alone is insufficient to establish an earlier reduction to practice. *Medichem[, S.A. v. Rolabo, S.L.*], 437 F.3d [1157,] 1169–71." "In the final analysis, each corroboration case must be decided on its own facts with a view to deciding whether the evidence as a whole is persuasive." *Cooper v. Goldfarb*, 154 F.3d 1321, 1331 (Fed. Cir. 1998) (quoting *Berges v. Gottstein*, 618 F.2d 771, 776 (C.C.P.A. 1980)).

For the following reasons and after consideration of all the evidence and the parties' respective contentions, we determine that Petitioner does not show by a preponderance of the evidence that Darlington qualifies as prior art and, thus, the sole ground of unpatentability fails.

We begin with a summary of the pertinent evidence and arguments and then analyze the parties' respective contentions.

1. Patent Owner's Evidence of Reduction to Practice

a. Exhibit 2006 — Declaration of Mathew A. McPherson

Patent Owner provides a declaration from Mathew A. McPherson who is the sole inventor named on the '989 patent. Ex. 2006. Mr. McPherson testifies that he "invented a compound bow cam design that I refer to as the 'Reverse Wrap' cam design and this cam design is the focus of the Challenged Patents." *Id.* ¶ 6. Mr. McPherson explains that the "Reverse Wrap" is "atypical" for compound bows and "means that the power cable initially wraps in a direction that is opposite to a direction that the cam rotates as the bow is drawn." *Id.*[7]

[7] Patent Owner provides a more detailed description of what it refers to as the "Reverse Wrap" cam design. *See* PO Resp. 2–5.

Mr. McPherson illustrates the "Reverse Wrap" concept with the following annotated versions of Figures 1 and 4 of the '989 patent:

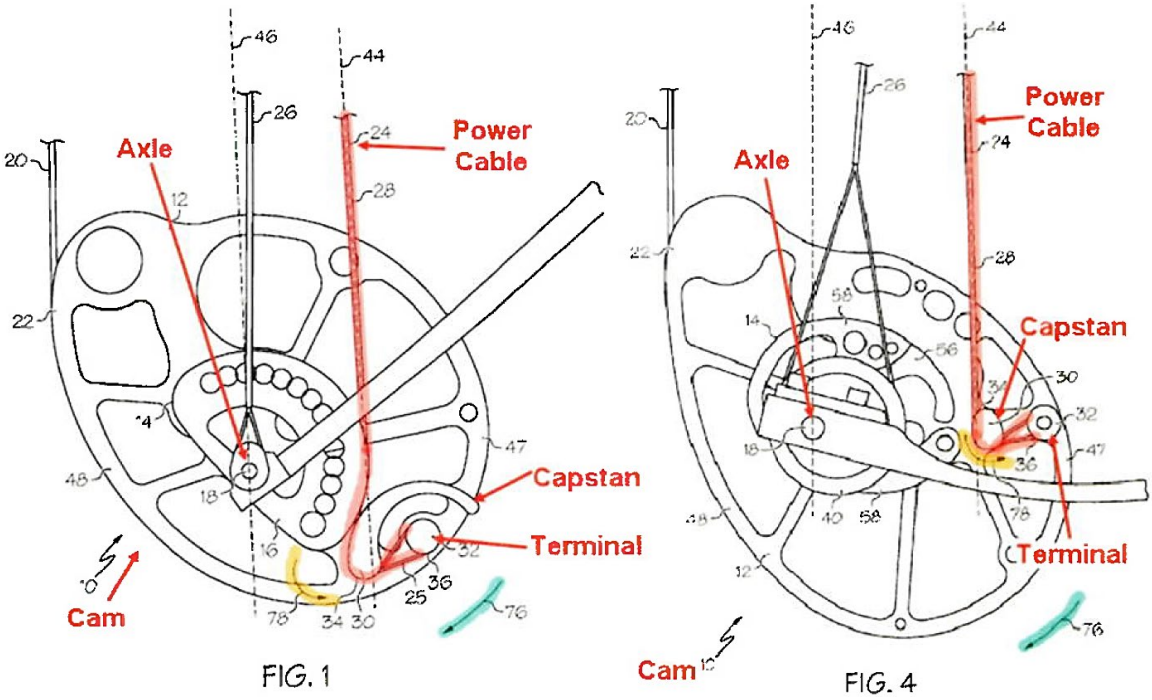

Figure 1 is "an embodiment of a cam suitable for use in a bow . . . in a brace orientation." Ex. 1001, 2:63–64. Figure 4 is "another embodiment of a cam in a brace orientation." *Id.* at 3:1–2. Mr. McPherson annotates each figure with red text "Axle" and a red arrow pointing to element 18, red text "Cam" with an arrow pointing to the rotatable member, red text "Power Cable" with an arrow pointing to element 24, red text "Capstan" with an arrow pointing to element 30, red text "Terminal" with an arrow pointing to element 16, highlighting a counterclockwise arrow in yellow, and highlighting a clockwise arrow in green. Ex. 2006 ¶ 6.

Mr. McPherson further testifies that, prior to the filing of the '473 Provisional, he "designed two bows with cams that included the Reverse Wrap feature of the Challenged Patents – the 2009 model year Mission

Menace bow ("Menace bow")[8] and the 2009 model year Mathews Monster bow ("Monster bow")[9]." Ex. 2006 ¶ 8. Further, he testifies that "[t]he cams depicted in the figures of the ['989 patent] and [the '473 Provisional] show the cam designs of the Mission Menace and Mathews Monster bows." *Id.*

With respect to the Menace bow, Mr. McPherson testifies it was "launched in October 2008" and a Menace Bow was shipped to Bill Krenz of Inside Archery Magazine who tested the bow and published a review in the magazine. Ex. 2006 ¶ 9. According to Mr. McPherson, Mr. Krenz's review of the Menace bow appeared in the December 2008 issue of Inside Archery ("the December 2008 review"). *Id.* A copy of the Mr. Krenz's review is in the record as Exhibit 2002 and the entire December 2008 issue of Inside Archery is in the record as Exhibit 2013.[10]

With respect to the Monster Bow, Mr. McPherson testifies that it "was designed and built as early as November 2008" and the "bow's first sales occurred in early 2009." Ex. 2006 ¶ 16. Further, a Monster bow was shipped to Mr. Krenz who tested the bow and published a review in the June 2009 issue of Inside Archery Magazine ("the June 2009 review"). *Id.* ¶¶ 17–18. A copy of Mr. Krenz's review is in the record as Exhibit 2003 and the entire June 2009 issue of Inside Archery magazine is in the record as Exhibit 2014.

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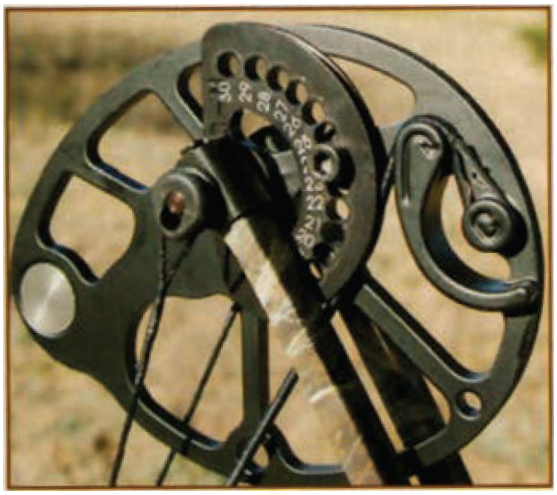
[8] Patent Owner contends that the Menace bow meets the limitation of claims 1, 3–4, 8–14, and 16–19. Ex. 2018 ¶ 61.

[9] Patent Owner contends that the Monster bow meets the limitations of claims 1–4 and 7–19. Ed. 2018 ¶ 84.

[10] Patent Owner provides a Declaration of Eduardo Rother who is "co-owner of Apollo Creative, publisher of Inside Archery" who testifies to the authenticity of Exhibits 2013 and 2014. Ex. 2015 ¶¶ 2, 11–14.

The McPherson declaration reproduces two photographs of cams excerpted from the Inside Archery articles that he annotated. Ex. 2006 ¶¶ 14, 22. The photographs of the cams in the December 2008 and June 2009 reviews are reproduced below:



The image above depicts a cam alleged to be used on a bow called the Mission Menace. Ex. 2002, 2.

This image depicts a cam alleged to be used on a bow called the Mathews Monster. Ex. 2003, 1.

b. Exhibit 2016 — Declaration of Jerrod Hoff

Mr. Hoff is currently Vice President of Manufacturing at Mathews Archery. Ex. 2016 ¶ 2. He has worked at Mathews Archery since May 2001. *Id.* ¶ 3. Since 2003, he has been responsible for "[i]nventory management and tracking." *Id.* He testifies that he "was involved with and ha[s] personal knowledge of the manufacture, inventory and shipping of the Mission Menace and Mathews Monster bow lines in 2008 and 2009." *Id.* ¶ 4.

Mr. Hoff testifies that Mathews Archery's "[redacted]" Ex. 2016 ¶ 4. According to Mr. Hoff, "[b]y the end of June 2009 we had made and shipped more than 12,000 Menace bows and more than 11,000 Monster bows." *Id.; see also id.* Appendix A (spreadsheet detailing Menace bows shipped from 9/26/2008–6/30/2009), Appendix C (spreadsheets detailing sales of Monster bows).

Mr. Hoff testifies that a Menace bow was shipped to Inside Archery on October 27, 2008. Ex. 2016 ¶¶ 14–16, App. A, 137, App. B, 603–05. Mr. Hoff further testifies that Mathews Archery has repurchased and currently possesses two Menace bows that were originally shipped to customers in November 2008. *Id.* ¶¶ 17–18, App. A, 10–11.

Mr. Hoff next testifies that a Monster bow was shipped to Inside Archery on March 23, 2009. *Id.* ¶ 21–23, App. C, 882, App. D, 1096–1098. Mr. Hoff further testifies that Mathews Archery has possession of a Monster bow first shipped on April 21, 2009. *Id.* ¶¶ 24–25, App. C, 283.

c. Exhibit 2017 — Declaration of Jeffrey A. Ozane

Mr. Ozane provides photographs of the Menace and Monster bows in Mathews Archery's possession that Mr. Hoff testifies Mathews Archery obtained from the respective original customers. Ex. 2017 ¶¶ 3–5, App. A, App. B, App. C. Mr. Ozane also testifies that Exhibit 2013 (December 2008 issue of Inside Archery Magazine) and Ex. 2014 (June 2009 issue of Inside Archery Magazine) are true and correct copies of the magazines obtained from the archives of Mathews Archery, Inc. *Id.* ¶¶ 6–8.

d. Exhibits 2007, 2018 Declarations of Charles F. Reinholtz

Dr. Reinholtz opines "that the '473 provisional discloses all of the features of the claims of the '989 Patent because the cam design and cam features are the same." Ex. 2018 ¶ 105. Dr. Reinholtz further opines that the Menace and Monster bows embody all limitations of the Challenged Claims for which each is offered. Ex. 2018 ¶¶ 32–104.

2. Patent Owner's Contentions

Patent Owner contends that "[b]efore Darlington's filing date, June 30, 2009, Mr. McPherson designed and built the Mission Menace and Mathew McPherson Series Monster bows, each of which embodied the claims of the '989 patent." PO Resp. 6–7. Patent Owner next contends that "[t]he Mission Menace bow was designed and built in 2008 and the product was first shipped to customers on September 26, 2008." *Id.* at 7 (citing Ex. 2006 ¶ 9; Ex. 2006 ¶ 12, App. A). Patent Owner further contends that "[t]he Monster bow was designed and built in 2008" and "was first shipped to customers on February 27, 2009." *Id.* (citing Ex. 2006 ¶¶ 9, 16; Ex. 2016 ¶¶ 12, 19, App. A, App. C). According to Patent Owner, both "models were reduced to practice and worked for their intended purposes, as evidenced by the fact that both bows were commercially produced and were 'tested for proper operation before being approved for production.'" *Id.* (citing Ex. 2006 ¶¶ 8, 15, 23; Ex. 2016 ¶¶ 12, 19).

Patent Owner submits that "over twenty thousand production model bows embodying the claims of the '989 patent were sold, manufactured, and shipped prior to Darlington's filing date." *Id.* (citing Ex. 2016 ¶¶ 12, 19); *see also id.* at 15 ("Mathews Archery's business records indicate that "12110

Mission Menace bows" and "11,263 Mathews Monster bows" were shipped prior to June 30, 2009 (citing Ex. 2016 ¶¶ 12, 19)).

Mr. "McPherson testifies that, FIGs. 1-6 of the '989 patent were generated based on the CAD models for the production bows." Ex. 2006 ¶ 8. Patent Owner relies on "photographs of two initial production run Mission Menace bows and one initial production run Mathews Monster bow" which were "produced and shipped prior to June 30, 2009." PO Resp. 8 (citing Ex. 2016 ¶¶ 17–18, 24–26; Ex. 2017, App. A–C). The bows were "received from a customer as part of a bow upgrade program" and are referred to as the "Menace '455 bow," "the Menace '817 bow," and "the Monster '775 bow." *Id.*, n. 5 (citing Ex. 2016 ¶¶ 17, 24). Patent Owner further contends that "the cams of each bow are substantially the same as the cams depicted in the '989 patent." *Id.* at 10 (citing Ex. 2006 ¶¶ 11, 19; Ex. 2016 ¶ 26); *id.* at 11–14 (reproducing photographs comparing the Menace '817 bow to Figures 1 and 2 of the '989 patent and comparing the Monster '775 bow to the Figures 4 and 5 of the '989 patent (citing Ex. 2017, App. B, C)).

Patent Owner further relies on Mr. Hoff's testimony. PO Resp. 9–10. For the Menace '817 and the Menace '455 bows, Mr. Hoff testifies that he

> personally inspected these two bows and they are Menace bows and the serial numbers appear to be unaltered. Photos of these bows are copied below from EX2017. Each of these bows bear the same serial number as our shipping records (Appendix A) and match the Make and Model description of the shipping records, i.e., camouflage left-handed (Menace '817) and right-handed (Menace '455) bows.

Ex. 2016 ¶ 18. For the Monster '775 bow, Mr. Hoff testifies that he

> personally inspected this bow and it is a Monster bow and the serial number is unaltered. Photographs of this bow are copied below from EX2017. This bow bears the same serial number as our shipping

> records (Appendix C) and matches the Make and Model description of the shipping records, i.e., camouflage right-handed 27-inch draw length Monster bow.

Id. ¶ 25.

Patent Owner provides photographs of the Menace ’817, Menace ’455, and Monster ’775 bows that were made and shipped prior to June 30, 2009. PO Resp. 9–14. Patent Owner contends that the “cams of each bow are substantially the same as the cams depicted in the ’989 patent.” *Id.* at 10 (citing Ex. 2006 ¶¶ 11,19; Ex. 2016 ¶ 26).

Patent Owner provides the following photograph of the upper cam of the Menace ’817 bow in the brace condition:

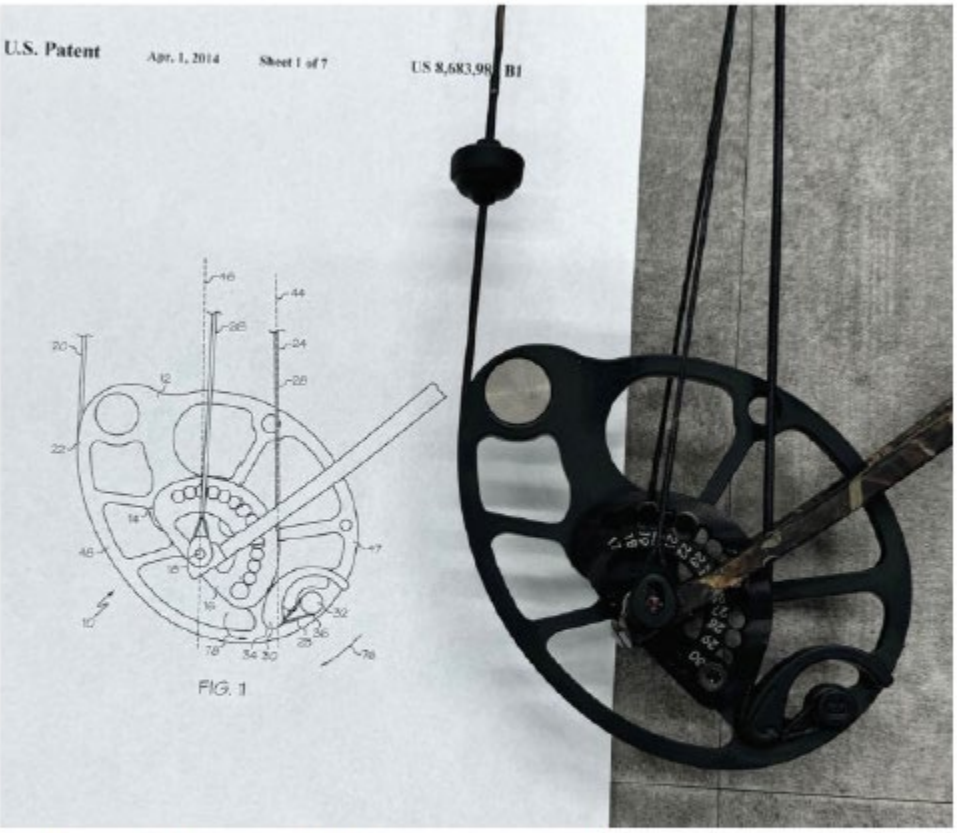


Photo 6: Menace ’817 bow upper cam in brace condition next to FIG. 1 of US Pat. No. 8,683,989.

EX2017, App. B.

The photograph shows the upper cam of a Menace bow in the brace condition next to an image of Figure 1 of the ’989 patent. PO Resp. 11 (reproduced from Ex. 2017, App. B). Figure 1 “shows an embodiment of a cam suitable for use in a bow . . . in a brace orientation.” Ex. 1001, 2:63–64.

Patent Owner provides the following photograph of the upper cam of the Menace ’817 bow in the drawn condition:

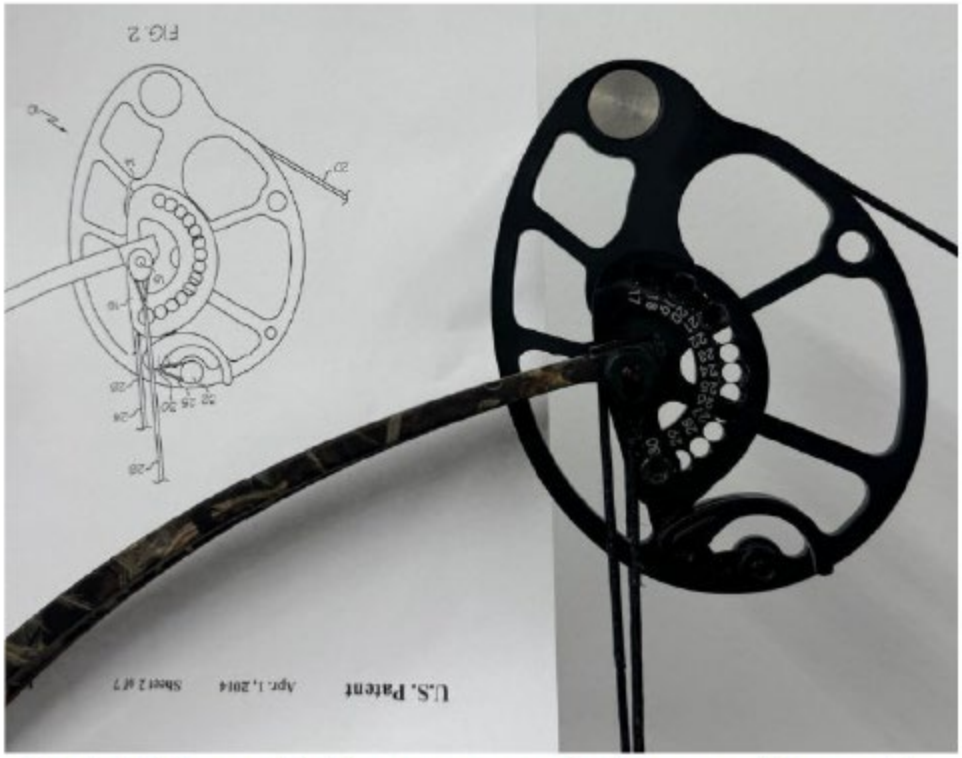


Photo 9: Menace ’817 bow upper cam in drawn condition next to FIG. 2 of US Pat. No. 8,683,989.

EX2017, App. B.

The photograph shows the upper cam of a Menace bow in the drawn condition next to an image of Figure 2 of the ’989 patent. PO Resp. 12 (reproduced from Ex. 2017, App. B). Figure 2 “shows the cam of FIG. 1 in a drawn orientation.” Ex. 1001, 2:63–64.

Patent Owner provides the following photograph of the lower cam of the Monster ’775 bow in the brace condition:

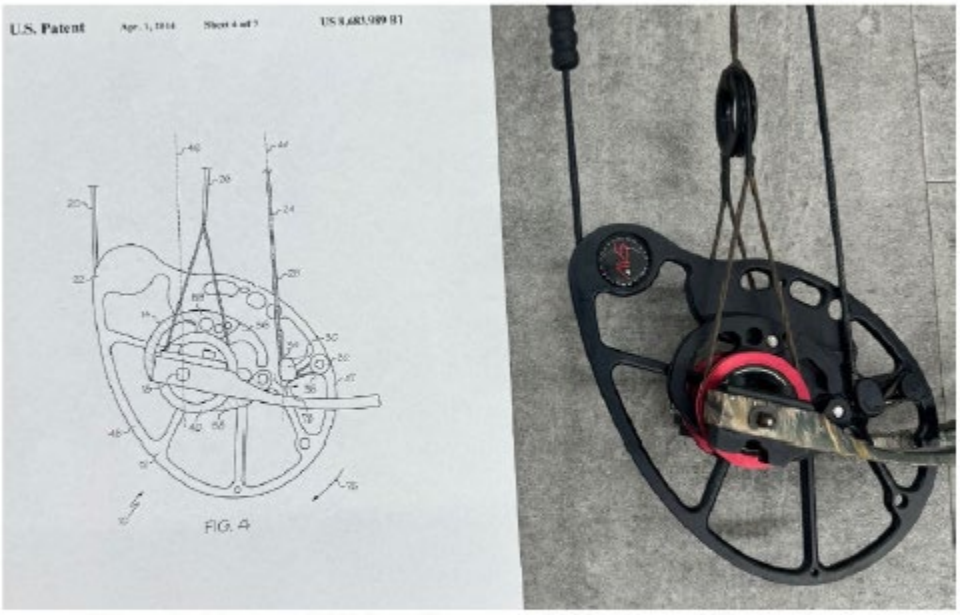


Photo 5: Monster ’775 bow lower cam in brace condition next to FIG. 4 of US Pat. No. 8,683,989.

EX2017, App. C.

The photograph shows the lower cam of a Monster bow in the brace condition next to an image of Figure 4 of the ’989 patent. PO Resp. 13 (reproduced from Ex. 2017, App. C). Figure 4 “shows another embodiment of a cam in a brace orientation.” Ex. 1001, 3:1–2.

Patent Owner provides the following photograph of the lower cam of the Monster '775 bow in the drawn condition:

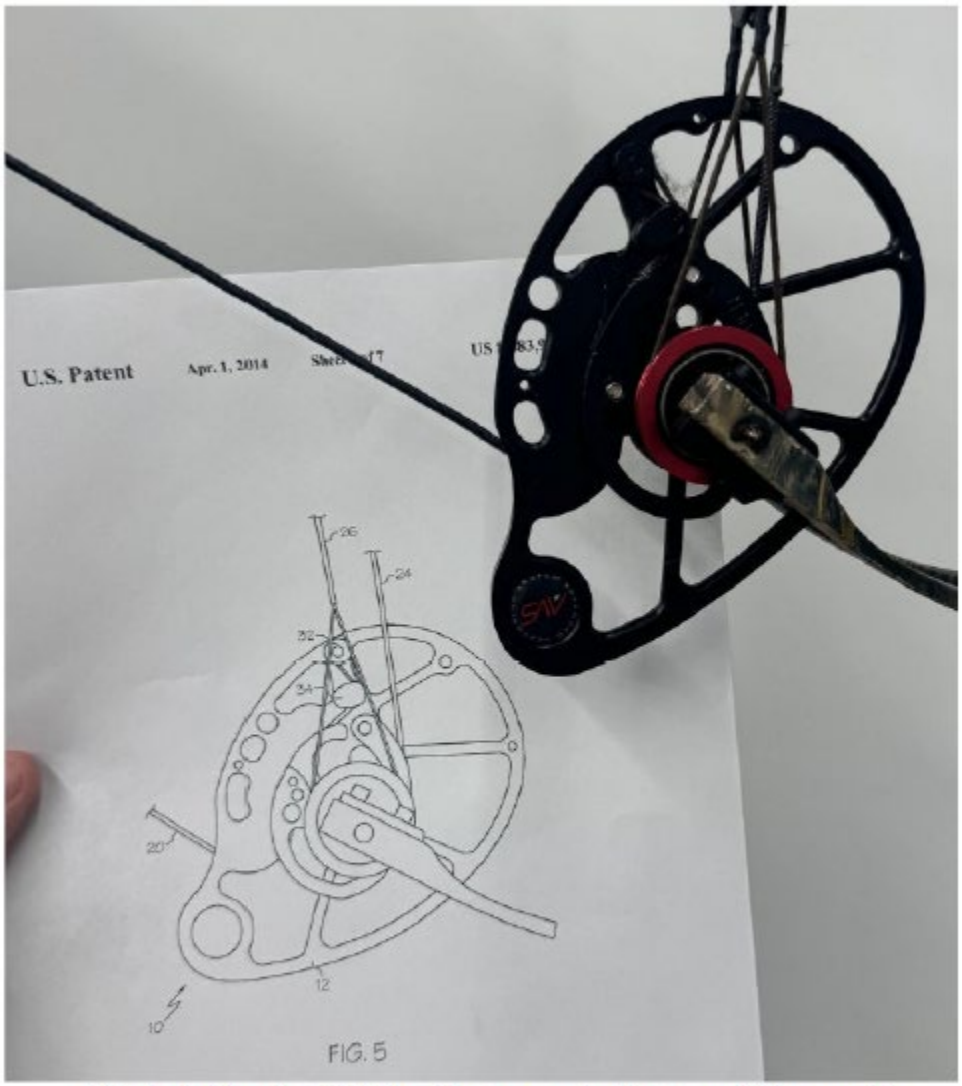


Photo 8: Monster '775 bow lower cam in drawn condition next to FIG. 5 of US Pat. No. 8,683,989.

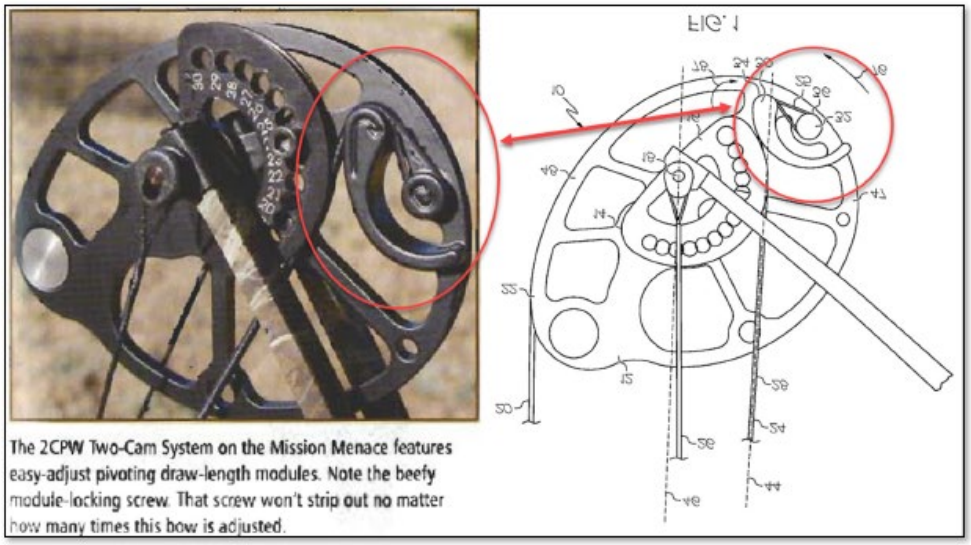
EX2017, App. C.

The photograph shows the lower cam of a Monster bow in the drawn condition next to an image of Figure 5 of the '989 patent. PO Resp. 14 (reproduced from Ex. 2017, App. C). Figure 5 "shows the cam of FIG. 4 in a drawn orientation." Ex. 1001, 3:3.

Patent Owner next contends that "Mathews Archery shipped production models of both the Mission Menace bow the Mathews Monster bow to *Inside Archery* magazine for review soon after shipments began for each product." PO Resp. 15 (citing Ex. 2006 ¶¶ 9, 17; Ex. 2016 ¶¶ 14–16, 21–23). Patent Owner submits that "[t]he Menace bow was reviewed in the December 2008 issue of *Inside Archery*[11] and the Monster bow was reviewed in the June 2009 issue." *Id.* at 15–16 (citing Ex. 2002, Ex. 2003, Ex. 2015). According to Patent Owner, the reviews "represent an independent review of a production Mission Menace bow and a production Mathews Monster bow by an industry expert," "capture the independent mental impressions of the performance of the Mission Menace bow and the Mathews Monster bow from an industry professional," and "provide additional third-party evidence corroborating that the inventions . . . were reduced to practice before Darlington's filing date and that the inventions operated for their intended purposes." *Id.* at 16–17 (citing Ex. 2002; Ex. 2003).

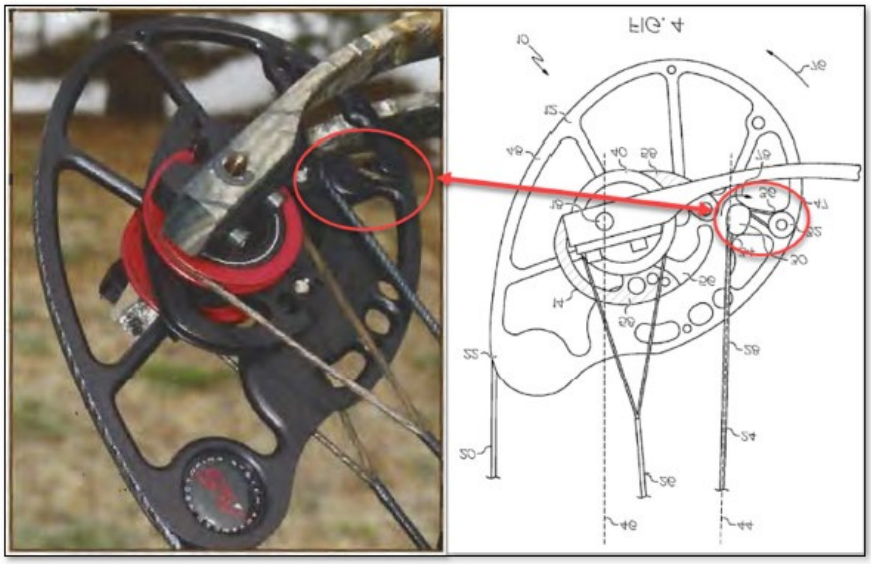
Patent Owner submits that "the cams of the Menace bow that Krenz reviewed are nearly identical to the cams depicted in FIGS. 1-3 of the '989 Patent." PO Resp. 20 (citing Ex. 2018 ¶¶ 32–104). Patent Owner provides the following side by side comparison of a cam of the Menace bow in the Krenz review to Figure 1 of the '989 patent:

[11] "*Inside Archery* magazine was 'a leading publisher in the Outdoor Sports Industry . . . reaching manufacturers, retailers and others in archery-related organizations' including approximately 12,000 non-paid subscribers in the archery industry." Ex. 2015 ¶¶ 5–6.



PO Resp. 21. On the left is a copy of the photograph of the Menace bow in the December 2008 review and a red ellipse around the capstan. *Id.* On the right is a rotated mirror image of Figure 1 of the '989 patent with a red ellipse around the capstan and a red arrow pointed to the ellipse in the photograph on the left. *Id.*

Patent Owner provides the following side by side comparison of a cam of the Monster bow in the Krenz review to Figure 4 of the '989 patent:



PO Resp. 24. On the left is a copy of the photograph of the Monster bow in the June 2009 review and a red ellipse around the capstan. *Id.* On the right is a rotated mirror image of Figure 4 of the '989 patent with a red ellipse around the capstan and a red arrow pointed to the ellipse in the photograph on the left. *Id.*

Patent Owner provides a limitation-by-limitation comparison of Challenged Claims 1, 3, 4, 8–14, and 16–19 to the Menace bow shown in the December 2008 review and the Menace '455 and Menace '871 bows. PO Resp. 25–61.

Patent Owner provides a limitation-by-limitation comparison of the Challenged Claims to the Monster bow shown in the June 2009 review and the Monster '775 bow. PO Resp. 61–76.

3. Petitioner's Evidence and Argument

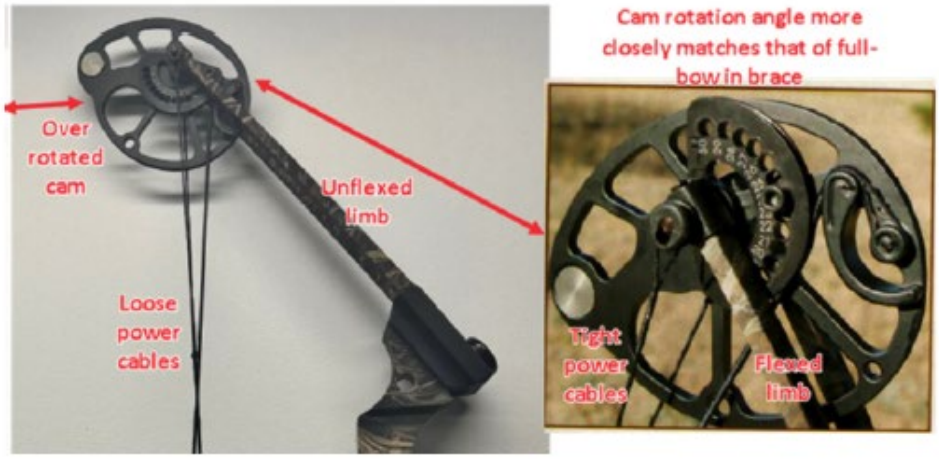
a. Inside Archery Articles

Petitioner contends that "[t]he images in the 2008 *Inside Archery* article depict an <u>unstrung bow</u> that is not in a 'brace condition' at all, and certainly could not teach a 'drawn condition,' having no string to possibly draw." Pet. Reply 5 (relying on photograph from PO Resp. 21). Petitioner notes "the particular bow in the article has not been located or produced." *Id.*

Petitioner contends that Patent Owner "does not provide testimony from *Inside Archery*, but instead took a photo of an unstrung Menace bow and compared it to the image in *Inside Archery*." Pet. Reply 5 (citing Ex. 2018, 36 (Photo 12)). Petitioner argues that Patent Owner's arguments based on Photo 12 are unsupported. *Id.* According to Petitioner, "[w]hen a bow is unstrung, the cams can rotate freely. In Photo 12, the cams have

been intentionally rotated to distinguish the image from the article image." *Id.* at 5–6.

Petitioner provides the following side-by-side view of Photo 12 and the Menace bow photo from *Inside Archery*:



EX2018, 36 (excerpted).

dont need a photo to show it worked when drawn in the context of the whole article.

Pet. Reply 6. Petitioner submits that "the tension in the power cables appears identical in Photo 12 (left) and the *Inside Archery* image (right). *Id.*

Petitioner next contends that "the June 2009 *Inside Archery* article fails to show a Monster bow in a drawn condition, as required by the claims. Pet. Reply 6 (citing Ex. 1001, limitations 1(f), 12(pre), and 19(f)(i)).

b. CAD Files

Petitioner points to Patent Owner's contentions that "the Figures in the '989 Patent 'were generated based on the CAD models for the ***production bows***'" and Mr. McPherson's testimony "suggest[ing] that the Figures were based on CAD drawings but does not say one way or the other whether the figures were based on the ***final*** CAD drawings for in-production bows." Pet. Reply 7 (quoting PO Resp. 8 (emphasis added by Petitioner)). Petitioner argues that Mr. McPherson's deposition testimony undercuts

Patent Owner's "claim that the Figures were specifically based on the ***production*** bows" and that his "declaration does not include any CAD files ***nor have any CAD files been produced to Petitioner in this IPR or in the parallel litgation***, leaving the Board to rely only on the inventor's uncorroborated say-so." *Id.* at 8.

c. Alleged Credibility Issues

Petitioner contends that Patent Owner unequivocally states that '[t]he Mission Menace bow was designed and built in 2008 and the product was first shipped to customers on September 26, 2008." Pet. Reply 12 (citing PO Resp. 7). Petitioner further contends that Patent Owner relies on this date in Mr. Hoff's declaration and "in proceedings with the Trademark Office over the 'Menace' trademark." *Id.* (citing Ex. 2016 ¶ 12, App. A; Ex. 2018). According to Petitioner, Patent Owner subsequently "attempted to re-write history" to avoid an alleged on-sale bar issue. *See id.* at 12–13. Petitioner cites to deposition testimony by Mr. McPherson and Mr. Hoff which Petitioner contends is contrary to the September 26, 2008 date. *Id.* at 13–15 (citing Ex. 1007, 37:10–22, 38:19–39:4; Ex. 1016, 14:5–11, 29:5-14)

Petitioner contends that we "should put zero credibility in Mr. Hoff's statements," "[t]he statements Mr. McPherson made to the Trademark Office and the statements Mr. McPherson made under oath in this proceeding cannot both be true," and the alleged "inconsistencies have destroyed [Mr. McPherson's] credibility." Pet. Reply 15.

d. Reduction to Practice Evidence and Analysis

The ultimate issue before us is whether Darlington, which is based on an application filed on June 20, 2009, qualifies as prior art to the '989 patent. In order to satisfy the ultimate burden of persuasion to prove unpatentability

by a preponderance of the evidence, Petitioner must persuade us "that the invention was not actually reduced to practice as argued" by Patent Owner. *Dynamic Drinkware*, 800 F.3d at 1380. *Id.* We evaluate whether or not the totality of the evidence before us shows that Patent Owner "constructed *an* embodiment or performed a process that met all the limitations of the claims[12] and (2) determined that the invention would work for its intended purpose" prior to June 30, 2009. *Steed*, 802 F.3d at 1318 (emphasis added).

For the following reasons, we determine that Patent Owner has shown that "an embodiment" of both the Menace bow and the Monster bow was constructed and worked for its intended purpose prior to June 30, 2009.

We begin with the following findings of fact and then address Petitioner's contentions:

1. Mathew McPherson is the sole inventor of the '989 patent and the '473 Provisional. Ex. 1001, code (75); Ex. 2001, 1; Ex. 2006 ¶¶ 4, 5.
2. Prior to filing the '473 Provisional, two bow models, the Menace bow and the 2009 Monster bow, were designed by Mr. McPherson. Ex. 2006 ¶ 8.
3. The cam designs of the Menace bows correspond to Figures 1–3 in the '989 Patent and the '473 Provisional and the cam designs of the Monster bow correspond to Figures 4–6. Ex. 2006 ¶ 8; Ex. 1001, Figs. 1–6; Ex. 2001, 21–26.

[12] As discussed below, we find that Patent Owner, relying on Dr. Reinholtz's testimony, has shown that the Menace bow shown in the December 2008 review and the Menace '455 and Menace '871 bows meet the limitations of claims 1, 3, 4, 8–14, and 16–19 and the Monster bow shown in the June 2009 review and the Monster '775 bow meet the limitations of all Challenged Claims.

4. A Menace bow was built, and shipped on or about October 24, 2008, to Bill Krenz, author of the Bow Report for *Inside Archery* magazine so that he could test the bow and publish a review in the magazine. Ex. 2006 ¶ 9; Ex. 2016 ¶ 14, App. A, 119, App. B (invoice to Inside Archery dated 10/24/2008).
5. A review of the Menace bow appeared in the December 2008 issue of Inside Archery Magazine. Ex. 2002; Ex. 2013, 42–43; Ex. 2015 ¶¶ 6–12; Ex. 2017 ¶¶ 6–7.
6. The December 2008 issue of Inside Archery was available to the public no later than late November 2008. Ex. 2015 ¶ 9 (Inside Archery's "usual practice . . . in the 2008-2009 timeframe, is to mail the magazine to retailers, manufacturers, and industry organizations one to two weeks of the month preceding the month of issue.").
7. The December 2008 review includes a photograph of a fully-strung Menace bow in the "brace" condition. Ex. 2006 ¶¶ 12–13; Ex. 2013, 43.
8. The December 2008 review includes a photograph of one of the cams of the Mission Menace bow. Ex. 2013, 43. The cam shown in the photograph is materially the same, with minor cosmetic differences, as the cam shown in Figures 1–3 of the '989 Patent and the '473 Provisional. Ex. 1001, Figs. 1–3; Ex. 2001, 21–23; Ex. 2006 ¶ 12.
9. The December 2008 review includes a table showing the results of tests performed on the Mission Menace bow using "a Spot-Hogg Hooter Shooter Portable Shooting Machine and a Competition Electronics Pro Chronograph." Ex. 2013, 43. Among the results measured were "Arrow Speed." *Id.*

10. Based on Mr. McPherson's testimony and the December 2008 review, we find that the Menace bow worked for its intended purpose of shooting arrows. Ex. 2006 ¶ 15; Ex. 2018 ¶ 33 (citing Ex. 2002, 42–43).
11. The Monster bow was designed and built in November 2008. Ex. 2006 ¶ 16.
12. The Monster bows were first shipped to a customer on February 27, 2009. Ex. 2016 ¶ 19, Appendix C; Ex. 2006 ¶ 16.
13. A Monster bow was built, and shipped on or about March 23, 2009, to Bill Krenz author of the Bow Report for *Inside Archery* magazine so that he could test the bow and publish a review in the magazine. Ex. 2006 ¶ 17; Ex. 2016 ¶ 21, App. C, 276, App. D (invoice to Inside Archery dated March 23, 2009).
14. A review of the Monster bow appeared in the June 2009 issue of Inside Archery Magazine. Ex. 2003; Ex. 2014, 30–31; Ex. 2015 ¶¶ 6–14; Ex. 2017 ¶¶ 6, 8.
15. This issue of Inside Archery Magazine was available to the public in late May 2009. Ex. 2015 ¶ 9.
16. The June 2009 review includes a photograph of a fully-strung Monster bow in the "brace" condition. Ex. 2006 ¶¶ 20–21; Ex. 2014, 31.
17. The June 2009 review includes a photograph of one of the cams of the Monster bow. Ex. 2014, 30. The cam shown in the photograph is materially the same, with minor cosmetic differences, as the cam shown in Figures 4–6 of the '989 Patent and the '473 Provisional. Ex. 1001, Figs. 4–6; Ex. 2001, 24–26; Ex. 2006 ¶ 19.

18. The June 2009 review includes a table showing the results of tests performed on the Monster bow using "a Spot-Hogg Hooter Shooter Portable Shooting Machine and a Competition Electronics Pro Chronograph." Ex. 2013, 31. Among the results measured were "Arrow Speed." *Id.*
19. Based on Mr. McPherson's testimony and the June 2009 review, we find that the Monster bow worked for its intended purpose of shooting arrows. Ex. 2006 ¶ 23; Ex. 2018 ¶ 36.
20. Prior to producing the Menace bows and Monster bows, Mathews Archery tested both the bow models for proper operation. Ex. 2006 ¶¶ 15, 23.
21. Mathew Archery "shipped more than 12,000 Menace bows and more than 11,000 Monster bows" by the end of June 2009. Ex. 2016 ¶ 4, App. A, App. C.

Based on the foregoing factual findings, we find that Patent Owner made a Menace bow, that worked for its intended purpose, and shipped it to Inside Archery magazine on or about than October 27, 2008. We further find that Patent Owner made a Monster bow, that worked for its intended purpose, and shipped it to Inside Archery Magazine on or about March 23, 2009.

We now address Petitioner's contentions which, as discussed below, are not persuasive.

Petitioner's first contention is that "[t]he images in the 2008 *Inside Archery* article depict an <u>unstrung</u> bow that is not in a 'brace condition at all, and certainly could not teach a 'drawn condition,' having no string to possibly draw." Pet. Reply 5. To support the contention that the bow shown

in Inside Archery is unstrung, Petitioner directs us to the photograph of the cam in the December 2008 review where the draw string is not visible. *Id.* For the following reasons, Petitioner's contention that the bow is unstrung and could not be drawn is not persuasive.

The pertinent portion of the page in the December 2008 review showing the cam referred to by Petitioner is reproduced at right. Ex. 2013, 43. The image shows page 43 of the December 2009 issue of Inside Archery magazine with a photograph of a cam on the Menace bow on the left side of the page and a photograph of the entire Menace fully strung bow on the right side of the page. *Id.*

draw-weight scale. | Competition Electronics Pro Chronograph.

The 2CPW Two-Cam System on the Mission Menace features easy-adjust pivoting draw-length modules. Note the beefy module-locking screw. That screw won't strip out no matter how many times this bow is adjusted.

been offered specifically for new bowhunters. The 2009 Mission Menace is astoundingly pleasant to shoot. There's little or no hand shock and the bow is quiet as a whisper. For a beginner bow, that's spectacular.

The new Menace is also packed with performance, the type of performance that can bring big smiles in the backyard or down a trophy buck in the field. See accompanying Arrow Speed chart.

Key Features and Benefits

Light and Compact

A light and compact bow can be a big plus to a new bowhunter. The 2009 Mission Menace weighs a mere 2.9 pounds and measures just 31 from axle to axle. That means it's easy to shoot, handle and get around.

Youth-to-Adult Draw-Length Range

Versatility is the watchword for the Menace. With an astounding draw-length range of 17-30 inches, the 2009 Menace can fit new bowhunters of all sorts, and easily grow with them from their early days well into their adulthood. Draw-length changes are a snap. Remove one locking screw on each cam and simply pivot the clearly marked modules to the desired draw-length setting. No bow press is required. It's done in just seconds.

Incremental Draw-Weight Increases

As draw length is adjusted upward, the maximum draw weight of the Mission Menace ratchets automatically upward as well. See the accompanying Draw Length and Maximum Draw Weight chart. As a new bowhunter grows, he or she also gets stronger and the Menace grows with them.

Perimeter-Weighted Cam System

Integrated in the 2CPW Two-Cam System of the Mission Menace are strategically-placed perimeter weights. When the bow is shot, those weights rotate backward as the limbs is the bow rocket forward, effectively counteracting and canceling out shot vibration and noise. The result is one of the quietest and most shock-free new-bowhunter bows ever offered.

Surprisingly Affordable

Economy and value are important to most new bowhunters. The 2009 Mission Menace is a surprisingly affordable bow, with retail prices ranging from $249 to $269. Given the Menace's versatility, good looks and performance, that's an authentic value.

Inside Archery 43 December 2008

Patent Owner argues that this page "includes two photographs of the strung Mission Menace bow – a close-up photograph of one cam and the full bow in the brace condition. Petitioner cannot, and does not dispute that the full bow is strung." Sur-reply 13. We agree with Patent Owner that the photograph showing the entire Menace bow in the December 2008 review shows a strung bow in the brace condition. Further, the December 2008 review lists test results for shooting an arrow with the bow confirming that the bow was, in fact, capable of being drawn. Ex. 2013, 43.

Patent Owner also provides the photograph reproduced at right. Ex. 2017, App. A, Photo 7. In this photograph, a sample Menace bow *with draw string* is shown next to the cam photograph in the December 2008 review. *Id.*

Photo 7: Menace '455 bow lower cam in brace condition next to a cam photograph in 2009 Mission Menace article of the *Inside Archery* December 2008 issue.

Based on our review of Photo 7, the left edge of the cam is where the drawstring exits from the cam. *See* Ex. 2017, App. A, Photo 7. The cam photograph in the December 2008 review is cropped such that the left edge of the cam and therefore the draw string is not visible. Based on our comparison of the cam photograph in the December 2008 review and Photo 7, we find that the evidence in the December 2008 review, i.e., the photograph showing that the bow was fully strung and test results showing that the bow actually was drawn, outweighs the inference Petitioner asks us to draw based on the photograph of the cam appearing on page 43 of the December 2008 Inside Archery article, i.e., that the bow was not strung.

Petitioner's arguments based on Photo 12 (Pet. Reply 5–6) are not persuasive because we do not rely on Photo 12. Additionally, Petitioner's argument concerning whether the cams in an unstrung bow can be rotated is unsupported attorney argument. The argument is also moot in light of our findings that the December 2008 review shows a fully strung bow that was

used to shoot arrows and that Petitioner does not persuade us that the cam photograph on page 43 of the December 2008 article reflects an unstrung bow.

Petitioner next contends that "the June 2009 *Inside Archery* article fails to show a Monster bow in a drawn condition as required by the claims. Pet. Reply 6. Petitioner also argues that "the *Inside Archery* articles alone fail to demonstrate a prior reduction to practice of each limitation of any claim." *Id.* We are not persuaded by these arguments.

Our findings concerning the Monster bow shown in the June 2009 Inside Archery article are not undermined by Petitioner's contention that the article fails to include a photograph of the Monster bow in its drawn condition. We rely on other evidence of record to corroborate Mr. McPherson's testimony. Dr. Reinholtz's testimony discussed further below, which we credit and which is almost entirely undisputed by Petitioner, establishes that the Menace bow shown in the December 2008 review, the Menace '455 bow, Menace '871 bow, the Monster bow shown in the June 2009 review, and the Monster '775 bow met every limitation of the Challenged Claims.

Petitioner's next argument relates to Mr. McPherson's testimony that the drawings in the '989 patent and the '473 provisional "were based off of the CAD drawings of the cams." Pet. Reply 7–8; Ex. 2006 ¶ 8. Petitioner argues that we should discount Mr. McPherson's testimony that the claimed bows were reduced to practice as the Monster and Menace bows because he could not recall who may have sent which versions of CAD drawings of those bows to counsel and Patent Owner did not make CAD drawings of

record. *Id.* (citing Ex. 1017, 17:4–18:16, 28:4–10, 28:19–29:2, 29:6–15, 29:23–30:1, 30:13–15). This argument is not persuasive.

We base our relevant findings on, *inter alia*, Mr. McPherson's testimony that he designed the cams shown in the figures of the '473 Provisional and the '989 patent, that a Mission bow and a Monster bow were each built and shipped to Inside Archery magazine for review, the Inside Archery review articles, and invoices for those bows. As discussed above, we find that a Menace bow was built and shipped to Inside Archery on or about October 27, 2008, and a Monster bow was shipped to Inside Archery on or about March 24, 2009. Reduction to practice, thus, occurred no later than seven months prior to June 30, 2009, for the Menace bow and approximately three months prior to June 30, 2009, for the Monster bow. Consequently, Mr. McPherson's testimony that he does not recall who sent which version of CAD drawings to counsel to draft the '473 Provisional, which was filed 11 months after October 27, 2008, is of little, if any, probative value for our determination of actual reduction to practice.

Petitioner next argues that we should disregard the testimony of both Mr. McPherson and Mr. Hoff due to alleged inconsistencies that render their testimony "not credible." Pet. Reply 15. The underlying issue from which this argument springs is that Patent Owner filed a trademark application for the trademark "MENACE" and stated in the trademark application that the first use in commerce occurred on September 26, 2008. Ex. 1018, 1. The '473 Provisional was filed on September 30, 2009. According to Petitioner, "[t]he September 26, 2008 sales that [Patent Owner] relies on invalidates the '989 Patent under the one-year sales bar of 35 U.S.C. § 102(b) (pre-AIA)."

Id. at 13. Petitioner acknowledges that we have no jurisdiction to decide this purported on-sale bar issue. *Id.* n.3.

Petitioner points to Patent Owner's assertion in the Patent Owner Response that "[t]he Mission Menace bow was designed and built in 2008 and the product was first shipped to customers on September 26, 2008." PO Resp. 7. In support of this assertion, Patent Owner cites to paragraph 9 of Mr. McPherson's declaration and Mr. Hoff's declaration at paragraph 12 and the Appendix A documents. *Id.*

We address Mr. McPherson's testimony first and then Mr. Hoff's.

Mr. McPherson testifies that "[t]he Mission Menace bow was designed in 2008 and launched in October 2008." Ex. 2006 ¶ 9. Mr. McPherson *did not testify* that a Mission Menace bow was shipped to a customer on September 26, 2008. *See id.*

Petitioner also asserts that Mr. McPherson "told the Trademark Office the Menace was 'first used ***in commerce*** at least as early as 9/26/2008.'" Pet. Reply 14. Petitioner provides the entire USPTO file for the MENACE trademark application (Ex. 1018) but nowhere in the Petitioner Reply does it direct us to any affidavit or declaration by Mr. McPherson. *See* Pet. Reply 12–15. Nonetheless, we undertook our own review of Exhibit 1018. Our review reveals that Mr. McPherson did not attest to the Statement of Use submitted with the MENACE application or otherwise provide a statement under oath. *See generally* Ex. 1018. Rather, attorney Richard A. Arrett

declared, on behalf of Patent Owner, that the MENACE mark was "first used in commerce at least as early as 09/26/2008."[13] Ex. 1018, 35.

After reviewing the record, we find that none of Mr. McPherson's deposition testimony cited by Petitioner (PO Resp. 13–14) is inconsistent with his declaration testimony that the Mission Menace bow was "launched in October 2008." Because there are no inconsistencies in his testimony of record in this proceeding, Petitioner's contention that we should disregard his testimony because "inconsistencies have destroyed his credibility" is not persuasive. We do not disregard his testimony.

We now turn to Mr. Hoff.

Mr. Hoff testifies that "Appendix A to my declaration is an excel spreadsheet listing 12,110 Mission Menace bows that were produced and shipped by Mathews Archery between September 26, 2008 and June 29, 2009." Ex. 2016 ¶ 12. Petitioner claims that due to the purported one-year on-sale bar issue, Mr. Hoff "attempted to rewrite history during" his deposition. Pet. Reply 13.

We reproduce the pertinent portions of Mr. Hoff's deposition testimony concerning Appendix A below:

[redacted]

[13] There is no testimony from Mr. Arrett in the record before us concerning the basis for the statement he attested to in the MENACE trademark application.

Ex. 1016, 12:16–24.

[redacted]

Q. Yeah, So are you referring to Appendix A?

A. Correct.

Q. Okay can we turn to Appendix A?

A. Yes.

Q. Okay, Based on Appendix A, what would the public release date for the Mission Menace bow have been?

A. October 1, 2008.

Q. Okay, I see that in Appendix A there are two rows with an order date before October 1. Do you see that?

A. Yes.

Q. Are those that, as you say, left the building before October 1?

A. Those two bows are to an internal customer; so they did not leave the building.

Q. Okay, So when it has a ship date for those bows, were those – are you saying that those bows weren't actually shipped out of the building on that date?

A. Correct.

Q. Then what does the ship-to-date represent for those two entries?

[redacted]

Q. So where did those two bows go on that shipped date?

> A. Based on that customer number, I know – happen to know that customer number is the Mathews account, which is an internal account. I can't say for sure where those bows physically went other than they would have been internally given to Matt McPherson, and I'm not sure what he would have done with them after that.
>
> Q. Do you – have a record – a record of any sort that would indicate whether those two bows were physically handed to Matt versus shipped to his house?
>
> A. No.
>
> [redacted]

Id. at 13:13–15:12.

The following is a reproduction of the pertinent part of two entries from the spreadsheet at issue that is part of Appendix A to Mr. Hoff's declaration:

Sales Order #	SOMAST Identity_ Column	Sales Order Line #	SOITEM identity_ column	Customer #	Retailer Name	Order Date	Serial Number	SYCSWON identity_ column	Serial Number Shipper #	Serial Number Shipper Line #	Part #	Part Description	Shipper #	SHMAST identity_ column	Shipper Line #	SHITEM identity _column	Shipper Sales Order Key	Shipped Date
[redacted]						[redacted]						MENACE LOST AT RH	[redacted]					
												MENACE LOST AT RH						

Ex. 2016, 19, App. A. These two entries show "[redacted] and "Shipped Date" of 9/26/2008. *Id.* The "Retailer Name" has been redacted. *Id.* In his deposition, Mr. Hoff testified that the customer number column is an internal Mathews account and that "Shipped Date" means "relieved from inventory" for an internal account not that the bows were shipped out of the factory. Mr. Hoff, thus, offers an explanation for the meaning of these entries that weighs against Petitioner's contention that the entries constitute actual customer sales. The record before us, however,

does not definitively establish whether the bows were sold and shipped to a customer on September 26, 2008. Patent Owner, for whatever reason, chose to redact the "Retailer Name"[14] column in the spreadsheet. If the Retailer Name for these two entries were revealed, that might shed a more definitive light on what the entries reflect. Further, Patent Owner did not provide any documentation to corroborate Mr. Hoff's testimony that the entry in the "Customer Number" column is an internal Mathews account. Nonetheless, we have no jurisdiction to consider whether the September 26, 2008, entries demonstrate that the bows were on sale as of that date, and, thus, leave this question for the district court to resolve. Because a legal determination of the on-sale bar is beyond the scope of this proceeding and therefore unnecessary to resolve the dispute before us, we decline to make a determination about the credibility of Mr. Hoff's testimony on this issue.

In the Petitioner Reply, Petitioner's attack on Mr. Hoff's credibility focuses on his testimony concerning whether the two bows were shipped on September 26, 2008, which could be material to the on-sale bar issue. Pet. Reply 12–15. At the oral hearing, Petitioner argued more generally that "I believe there is a taint to everything submitted by Mr. Hoff" including the Appendices to his declaration. Tr. 89:13–14; *see id.* at 41:5–8 (arguing that Board should not believe anything in the appendices because of his testimony on the first two entries in Appendix A). This general scope of the credibility argument is not raised in the Reply Brief and, thus, was improperly raised during the oral hearing. *See* Paper 28, 4 ("strict prohibition against the presentation of new evidence or arguments at a

[14] Exhibit 2016 was filed under seal with the "Retailer Names" redacted.

hearing."). Nonetheless, we rely on Mr. Hoff's testimony for corroboration of Mr. McPherson's testimony. Mr. Hoff's testimony, upon which we rely, does not relate to the September 26, 2008, entries and much of his testimony is itself corroborated by other documents and the Inside Archery review articles.

Mr. Hoff submitted a sales order and invoice for the Menace bow shipped to Inside Archery magazine on or about October 27, 2008. Ex. 2016 ¶ 14, App. B. The fact that the Menace bow had been built and shipped on this date is corroborated by independent evidence in the form of the December 2008 review in the Inside Archery Magazine. Both Mr. Hoff's declaration and the December 2008 review corroborate Mr. McPherson's testimony that a Menace bow was "shipped . . . to Bill Krenz . . . shortly after the Mission Menace was launched." Ex. 2006 ¶ 9. Consequently, whatever issues may exist with Mr. Hoff's testimony concerning the sale of bows on September 26, 2008, we do not agree with Petitioner that Mr. Hoff's testimony and documents concerning the shipment to Inside Archery of a Menace bow on or about October 27, 2008, is unreliable or should be disregarded. Consequently, we do not disregard paragraph 14 of Mr. Hoff's declaration or the invoice attached as Appendix B to his declaration.

We now turn to Petitioner's argument at the oral hearing that the Menace '455 bow, the Menace '817 bow, and the Monster '775 bow should not be considered. Specifically, Petitioner argued that:

> So when you look at the physical bows, the physical bows were reacquired from customers by [Patent Owner]. We don't know whether those customers changed those cams. We don't know whether those customers modified those cams. We don't know if those cams were the

> cams that were sold in 2009 such that you could write an opinion that says, I have evidence from a declarant who purchased this bow in 2009.

Tr. 38:8–13

> JUDGE PESLAK: Okay, But then what is in those two bows that does not correlate to any of the challenged claims?
>
> MR. SEITZ: We haven't provided any evidence on that, Your Honor. That's not an aspect that we've challenged. We've challenged the evidentiary side of this and the questions of the holes that are left in the evidentiary record.

Id. at 45:10–15.

As can be seen from this colloquy, Petitioner does not dispute that the Menace '455 bow, the Menace '817 bow, and the Monster '775 bow meet the limitations of the Challenged Claims. With respect to Petitioner's "evidentiary side" argument for the Mission and Menace bows, the Petitioner's Reply is silent. *See* Pet. Reply 4–15. Further, Petitioner did not move to exclude any evidence and did not specifically object to the photographs of these bows or other evidence in the record relating to the bows. *See* Paper 15. Consequently, Petitioner has forfeited any "evidentiary side" argument with respect to the Menace '455 bow, the Menace '817 bow, and the Monster '775 bow. Nonetheless, we find that Mr. Hoff's testimony and the associated documentary evidence establishes that the bows are in fact Menace and Monster bows shipped to customers prior to June 30, 2009, with serial numbers unaltered even in the absence of a declaration from the end user customer. Ex. 2016 ¶¶ 18, 25.

4. Patent Owner's Showing Concerning the Limitations of the Challenged Claims

In addition to showing that an embodiment of the Mission bow and the Monster bow were built prior to June 30, 2009 and that each worked for

its intended purpose, Patent Owner must show that the embodiments "met all the limitations of the claim." *In re Steed*, 802 F.3d at 1318. We now turn to the question of whether the Mission bow and the Monster bow meet all limitations of the Challenged Claims. We do so by analyzing the evidence before us that corroborates Mr. McPherson's testimony, i.e., the December 2008 review, the June 2009 review, the Menace '455 bow, the Menace '817 bow, the Monster '775 bow and Dr. Reinholtz's opinions.

a. Menace Bow

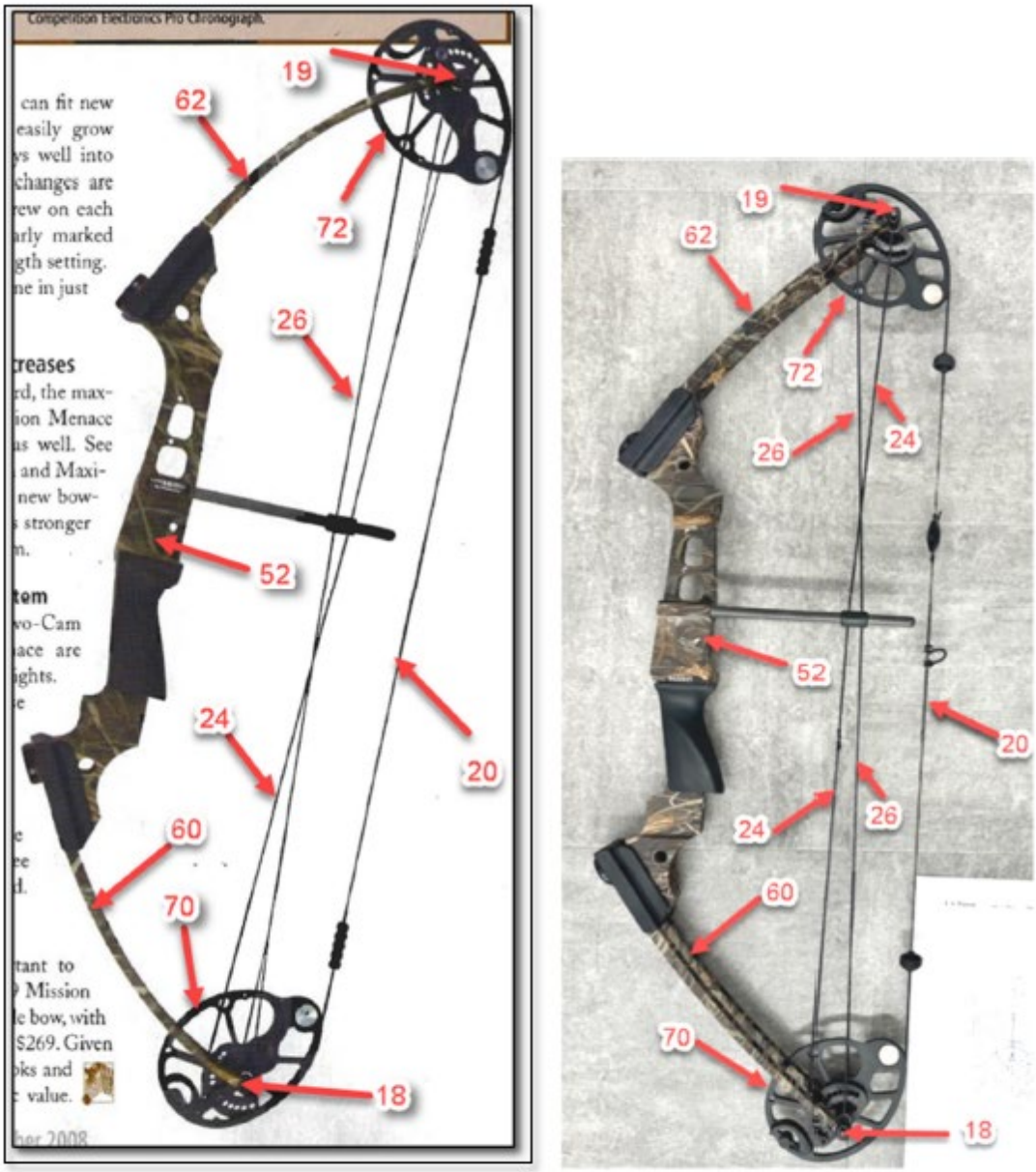
i. Claim 1

a) Limitations 1(Pre), 1(a), 1(b)(i), 1(c)[15]

Patent Owner contends that the December 2008 review "includes a photograph of the full Mission Menace bow in a brace condition with a riser (52) supporting both a first (60) and a second limb (62)." PO Resp. 32–33 (Citing Ex. 2002, 2; Ex. 2018 ¶ 63). Patent Owner further contends that "[e]ach limb supports a rotating cam (70, 72) on a respective axle (18, 19), with a drawstring extending between the two cams" and that the same features are also depicted in the photographs of the Menace '455 and Menace '817 bows." *Id.* at 33 (citing Ex. 2017, App. A, App. B; Ex. 2018 ¶¶ 33–51, 61–63).

[15] We use the parties claim limitation annotations for ease of reference.

Patent Owner provides the following annotated photographs of the Menace bow illustrated in the December 2008 review and the Menace '817 bow:



EX2002, 2 (annotated); EX2017, App. A, Photo 2 (annotated).

PO Resp. 34. On the left is the photograph of the fully strung Menace bow in the December 2008 review (Ex. 2002, 2) and on the right is a photograph

of the Menace '817 bow (Ex. 2017, App. A, Photo 2). *Id.* Patent Owner adds red numerals corresponding to the element numbers quoted above with arrows pointing to the corresponding elements in the bows shown in each of the photographs. *Id.*

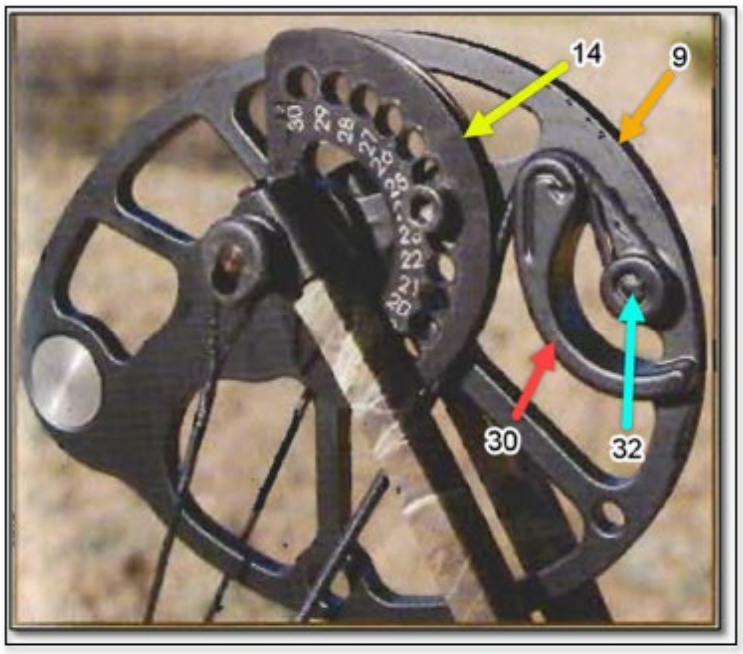
Petitioner does not dispute Patent Owner's mapping of the Menace bow to the subject matter of the preamble or the other limitations.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bows meet the subject matter of the preamble of claim 1 and limitations 1(a), 1(b)(i), and 1(c).

b) Limitations 1(b)(ii)–(v)

Patent Owner contends that "[t]he Menace article includes a closeup photograph of one of the Mission Menace bow cams" with "[t]he drawstring track (9), cam track (14), capstan 30, and terminal (32) are each clearly visible" and "the cam track offset in a separate plane from the drawstring track." PO Resp. 35 (citing Ex. 2018 ¶ 64). According to Patent Owner, "[t]he same features are also depicted in the photographs of the Menace '455 and Menace '817 bows." *Id.* (citing Ex. 2017, App. A., App. B; Ex. 2018 ¶¶ 33–51).

Patent Owner provides the following annotated version of the Menace bow illustrated in the December 2008 review:



EX2002, 2 (upper cam annotated).

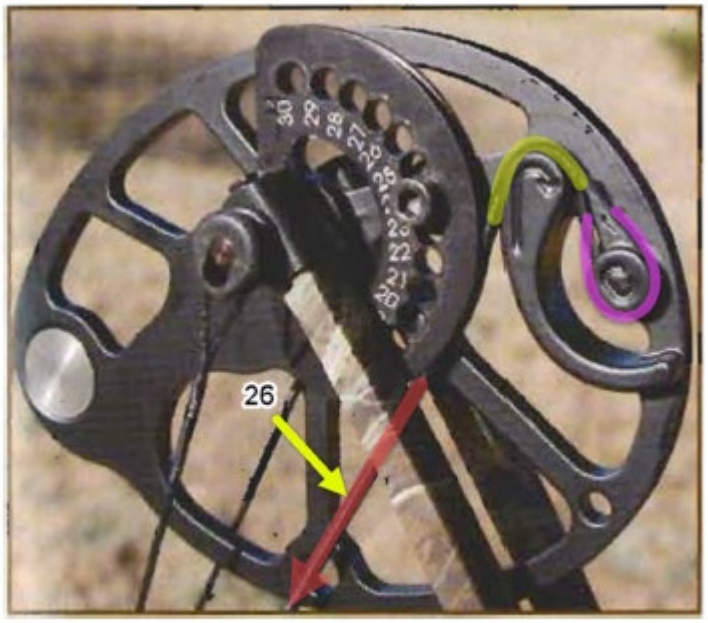
PO Resp. 35. The photograph depicts a cam of the fully strung Menace bow in the December 2008 review (Ex. 2002, 2) to which Patent Owner adds numerals corresponding to the element numbers quoted above with arrows pointing to the corresponding elements in the cam shown in the photograph. *Id.*

Petitioner does not dispute Patent Owner's mapping of the Menace bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets limitations 1(b)(ii)–(v).

c) Limitations 1(d)(i)–(ii)

Patent Owner provides the following annotated version of the Menace bow cam appearing in the December 2008 review:



EX2002, 2 (annotated).

PO Resp. 37. The photograph depicts a cam of the fully strung Menace bow in the December 2008 review (Ex. 2002, 2) to which Patent Owner adds purple highlighting, yellow high lighting, and red highlighting to various portions of the power cable and the numeral 26 with a yellow arrow pointing to the red portion of the power cable. *Id.*

Patent Owner contends that power cable 26 "had a straight portion (red portion) extending from one cam towards the other cam" with a portion "wrapped around the capstan (yellow portion) and a portion that loops around the terminal (purple portion)" and "the elongate straight portion (red) running alongside (i.e., near) the rotatable cam." PO Resp. 36 (citing Ex. 2018 ¶65). Patent Owner further contends that "[t]he same features are

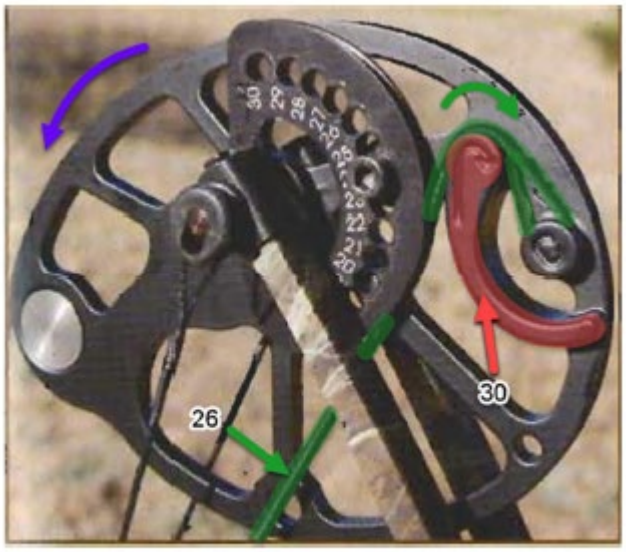
also depicted in the photographs of the Menace '455 and Menace '817 bows." *Id.* (citing Ex. 2017, App. A, App. B; Ex. 2018 ¶¶ 33–51).

Petitioner does not dispute Patent Owner's mapping of the Menace bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets limitations 1(d)(i)–(ii).

d) Limitations 1(e) and 1(f)

Patent Owner provides the following annotated version of the Menace bow cam appearing in the December 2008 review:



EX2002, 2 (annotated).

PO Resp. 38. The photograph depicts a cam of the fully strung Menace bow in the December 2008 review (Ex. 2002, 2) to which Patent Owner adds red highlighting to capstan 30, green highlighting to portions of the power cable 26, a green clockwise arrow around capstan 30, and a purple counterclockwise arrow near the left edge of the cam. *Id.*

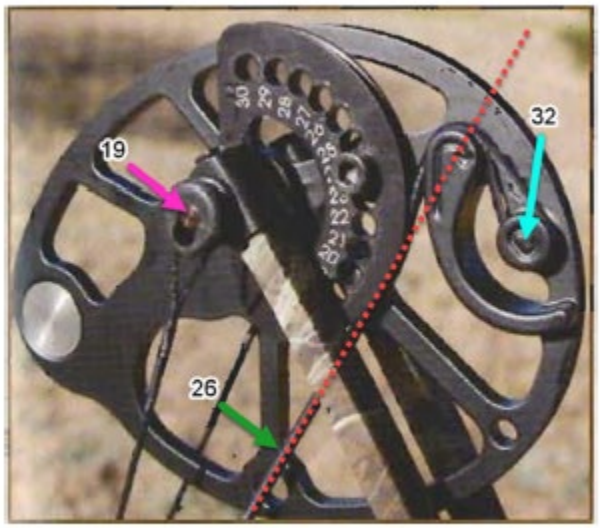
Patent Owner contends that the photograph shows that the Menace "bow power cable (26) wrapped from left to right around the capstan (30), as shown by the green arrow, while the cam rotated in the opposite direction, indicated by the purple arrow, when the bow is drawn from the brace condition." PO Resp. 37 (citing Ex. 2017, video file Menace 455 Full Bow.mp4, Menace 455 Lower Cam.mp4, Menace 817 Full Bow.mp4, Menace 817 Upper Cam.mp4; Ex. 2018 ¶ 66).

Petitioner does not dispute Patent Owner's mapping of the Menace bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets limitations 1(e) and 1(f).

e) Limitation 1(g)

Patent Owner provides the following annotated version of the Menace bow cam appearing in the December 2008 review:



EX2002, 2 (annotated).

PO Resp. 39. The photograph depicts a cam of the fully strung Menace bow in the December 2008 review (Ex. 2002, 2) to which Patent Owner adds red dashed highlighting to power cable 26, a pink arrow pointing to axle 19, and an aqua arrow pointing to terminal 32.

Patent Owner contends that "[t]he photograph of the Mission Menace bow shows the cam in the brace condition and has been annotated with a dashed line approximating the plane formed by the straight portion of the power cable (26)." PO Resp. 38 (citing Ex. 2018 ¶ 67). Patent Owner further contends that "[t]he axle (19) and the terminal (32) are on opposite sides of the plane formed by the straight portion of the power cable (26)." *Id.* at 38–39. According to Patent Owner, "[t]he same features are also depicted in the photographs of the Menace '455 and Menace '817 bows." *Id.* at 39 (citing Ex. 2017, App. A, App. B; Ex. 2018 ¶¶ 33–51).

Petitioner contends that Patent Owner "has not shown that the Menace or Monster bows met the requirement of limitation 1(g) of 'wherein, in the brace condition, the elongate straight portion defines a plane.'" Pet. Reply 8.

Petitioner contends that Patent Owner "relies on the imaginary dashed lines that Dr. Reinholtz added to the figures, allegedly 'approximating the plane formed by the straight portion of the power cable." Pet. Reply 9 (citing PO Resp. 38–39, 65–66; Ex. 2002, 2; Ex. 2003, 1). According to Petitioner,

> Dr. Reinholtz provides [no] explanation for why a [person of ordinary skill in the art] would have purportedly understood that the dashed line defines a plane that would "be parallel to the axle direction" and "extend perpendicularly from the face" of the bow rather than, for example, parallel to the axel [sic] direction parallel from the face. . . . In this, Dr. Reinholtz's opinion on what a [person of ordinary skill in

> the art] would have understood is wholly conclusory and entitled to no weight.

Id. (citing Ex. 2018 ¶¶ 67, 90).

Patent Owner responds that "the planes in the claim limitations at issue are intangible (imaginary) references recited to define relative positions of cam components. The planes are not structural components of the bow itself, and Petitioner admits as much in its own mapping of the same claim limitations." Sur-reply 30 (citing Pet. 44–46) (footnote omitted). Patent Owner argues that Dr. "Reinholtz's annotated photographs simply mirror the planes represented by elements 44 and 46 depicted in the patent figures to clearly demonstrate how McPherson's bows embodied his invention." *Id.* According to Patent Owner, "[t]he fact that McPherson's bows embodied these particular claim limitations is self-evident to any ordinary observer at least because the physical bow cams closely match the patent figures." *Id.* at 30–31 (citing PO Resp. 8–14; Ex. 2018 ¶¶ 38–60).

Patent Owner next argues that "Dr. Reinholtz explains that the plane extending from the power cable's elongate portion 'would be perpendicular to the cam (e.g., extending into/out of the photograph) because the plane is used to define locations of features on the cam" and "the direction of the axle plane based on the direction of the axles' axis of rotation and that the parallel axles inherently define the axle plane." Sur-reply 36 (citing Ex. 2018 ¶¶ 67, 72, 91) (emphasis omitted).

For the following reasons, we are not persuaded by Petitioner's contention.

Claim 1 recites, *inter alia*, "wherein, in the brace condition, the elongate straight portion defines a plane, wherein the first axle and said terminal are located on opposite sides of the plane." Ex. 1001, 7:5–8.

Referring to Figure 1, the '989 patent describes "the elongate straight portion 28 [of the power cable 24] defines a cable plane 44." *Id.* at 4:46–47. We agree with Patent Owner that the "plane" recited in claim 1 is not a tangible component of the bow but serves as a frame of reference for the required placement of the "first axle" and "terminal" on the cam. *See* Ex. 2018 ¶ 67 ("A POSITA would have understood that the plane would be perpendicular to the cam . . . because the plane is used to define locations of features on the cam."). Further, as noted by Patent Owner, Petitioner's mapping of limitation 1(g) used the same orientation of the plane as perpendicular to the surface of the cam. *See* Pet. 45–46. Petitioner's expert testified that, for limitation 1(g) in the proposed combination of Darlington and Islas, "the power cable is highlighted in green and the plane defined by the power cable is illustrated by a dashed red line superimposed upon the green cable. The plane is seen side-on, stretching infinitely up and down along the power cable both into and out of the image." Ex. 1003 ¶ 65. Thus, both Dr. Lange and Dr. Reinholtz testify that a person of ordinary skill in the art would interpret the "plane" recited in claim 1 in the same manner.

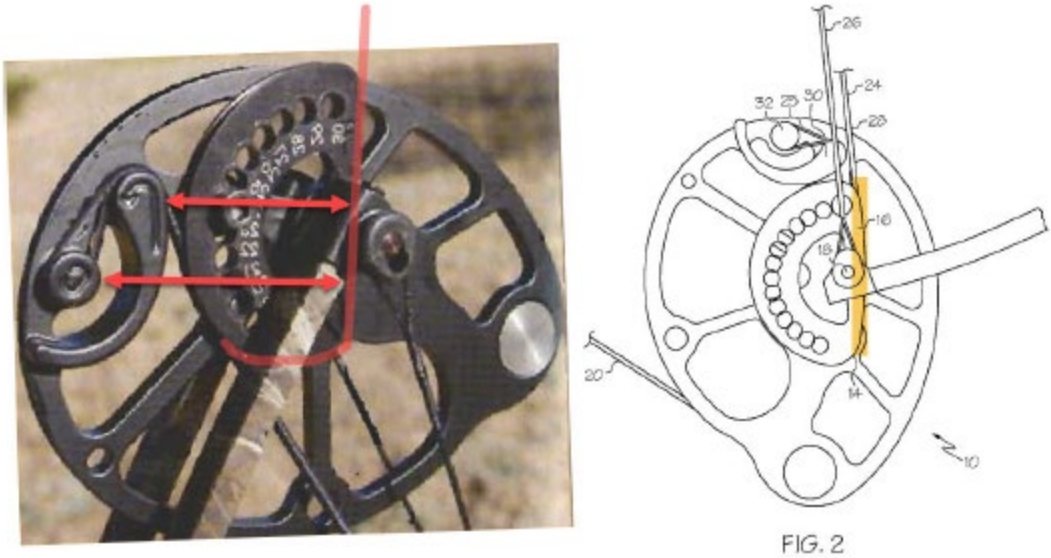
We have reviewed Patent Owner's contentions and evidence in light of Petitioner's contentions and find that Patent Owner has shown that the Menace bow meets limitation 1(g).

For all the foregoing reasons, we find that the Menace bow meets all limitations of claim 1.

ii. Claim 11

Patent Owner contends that independent claim 11 is similar to claim 1 except for limitation 11(g). PO Resp. 39.

For limitation 11(g), Patent Owner contends that "on the Mission Menace cams the capstan was closer to the straight portion of the power cable than the terminal when the bow is drawn. The draw only rotates the cam, but the relative position of components on the cam remain[s] the same." PO Resp. 39–40 (citing Ex. 2018 ¶¶ 68–69). Patent Owner supports its contention with the following annotated images:



On the left is an annotated version of the cam photograph in the December 2008 review and on the right is an annotated version of Figure 2 of the '989 patent. PO Resp. 40. Petitioner annotates the cam photograph with red highlighting of the power cable and red arrows from the power cable to the capstan and terminal. *Id.* Patent Owner annotates Figure 2 with orange highlighting on the power cable. *Id.*

Patent Owner argues that "[w]hen the bow is drawn the power cable rests in the flat portion of the cam module, shown in orange in FIG. 2 of the '989 Patent." PO Resp. 40. According to Patent Owner, the Menace bow "had the same shape cam module, and when drawn the power cable would

rest in the same flat portion, as shown in annotated red lines" and "[t]he terminal is further from this straight portion of the power cable than the capstan, similar to that depicted in FIG. 2 of the '989 Patent." *Id.*

Patent Owner also provides photographs of the Menace '455 bow in the drawn condition which show capstan (30) "located closer to the elongate straight portion (28) of the power cable (24) than the terminal (32)." PO Resp. 41 (citing Ex. 2002; Ex.2017; Ex. 2018 ¶¶ 68–71); *id.* at 42 (reproducing Ex. 2017, App. A, Photos 8, 10).

Petitioner does not dispute Patent Owner's mapping of the Menace bow to claim 11.

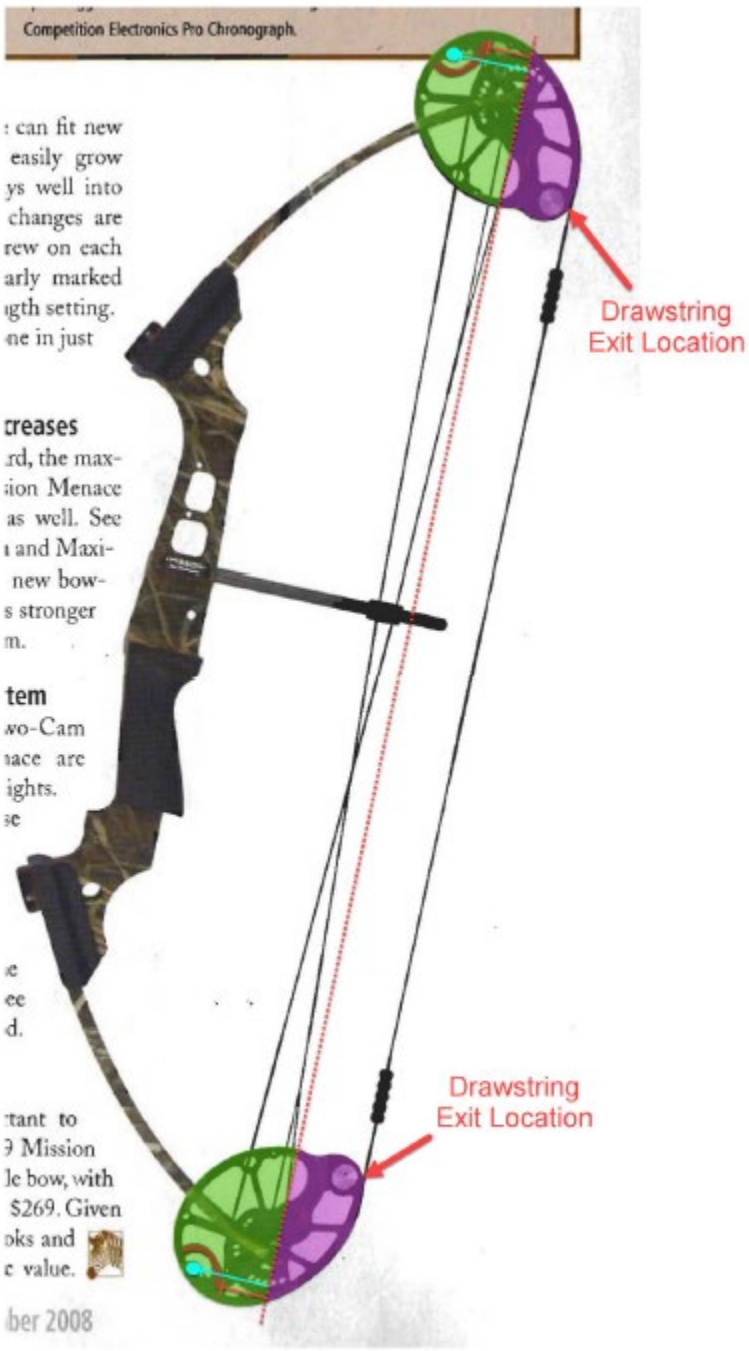
We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets the limitations of claim 11.

iii. Claim 12

Patent Owner contends that claim 12 is similar to claim 1 except for limitations 12(b)(i)–(ii), 12(c)(i)–(ii), and 12(e)(i)–(ii). PO Resp. 43–47.

For these limitations, Patent Owner first refers to its contentions for limitation 1(c). PO Resp. 43. Patent Owner provides the following

annotated photographs of the Menace bow from the December 2008 review and the Menace '817 bow:



EX2002, 2 (annotated).

PO Resp. 44. In this annotated version of the full bow photograph in the December 2008 review, Patent Owner adds a dashed red line separating the upper and lower cams into a green shaded portion and a purple shaded portion and adds text reading "Drawstring Exit Location" at the top and bottom of the photograph with red arrows pointing to the location on the cams where the drawstring exits. *Id.*

PO Resp. 45. Patent Owner annotates this photograph of the Menace '817 bow (Ex. 2017, App. B, Photo 2) with a dashed redline separating the upper and lower cams into a green shaded portion and a purple shaded portion and

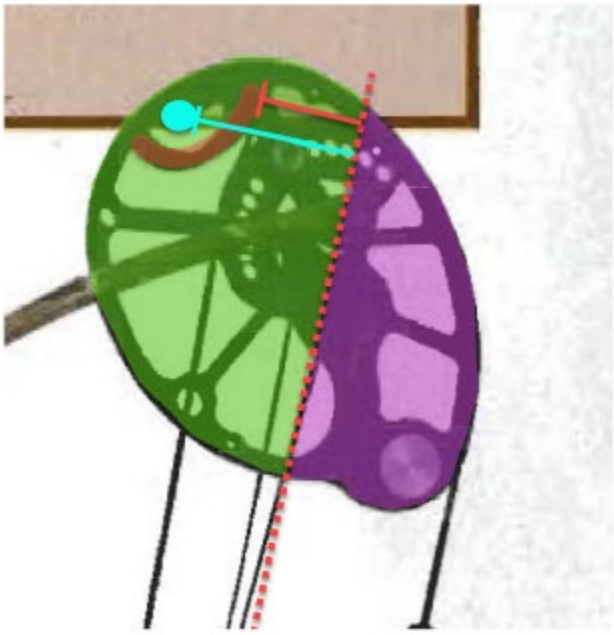
an ellipse drawn around the capstan with red element numbers 18, 19, and 22. *Id.*

Patent Owner contends that the red dashed lines in these photos correspond to the recited "axle plane defined by the two axles (18, 19) and to show the drawstring location (22) on each cam." PO Resp. 43. Patent Owner further contends that "[t]he axle plane of the Mission Menace bow divides each cam into a first part (green) and a second part (purple). The capstan and terminal (circled) were located in the green first part, and the drawstring exit (22) was located on the purple second part." *Id.* (citing Ex. 2018 ¶¶ 71–73).

Petitioner argues that the red dashed lines shown in these photographs suffer from the same alleged deficiencies as the dashed lines relied on for limitation 1(g). Pet. Reply 10. For the reasons discussed above for limitation 1(g), this contention is not persuasive.

We have reviewed Patent Owner's contentions and evidence, in light of Petitioner's contentions, and find that Patent Owner has shown that the Menace bow meets limitations 12(b)(i)–(ii) and 12(c)(i)–(ii).

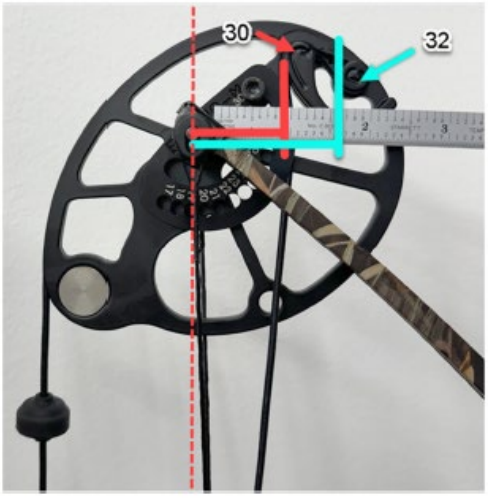
For limitation 12(e)(i), Patent Owner provides the following close-up view of the upper cam shown in the immediately preceding photographs:



EX2002, 2 (annotated).

PO Resp. 46. In this cropped version of the upper cam of the Menace bow shown immediately above, Patent Owner adds a solid red line from the dashed redline to the capstan and a solid aqua line from the dashed red line to the terminal. *Id.*

Patent Owner provides the following photograph of a cam in the Menace ’817 bow:



EX2017, App. B, Photo 4 (annotated).

PO Resp. 47. In this cropped photograph of the Menace '817 bow shown immediately above, Patent Owner adds a solid red line from the red dashed line to the capstan and a sold aqua line from the dashed red line to the terminal and inserts a ruler into the photograph to show the relative distances from the dashed red line to the capstan and terminal. *Id.*

Patent Owner contends that the photographs show that the distance between the terminal and the axle plane (aqua line) is greater than the distance between the capstan and axle plane (red line). PO Resp. 46 (citing Ex. 2018 ¶ 74).

Other than the contention concerning the red dashed line discussed above, Petitioner does not dispute Patent Owner's mapping of the Menace bow to limitation 12(e)(ii).

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets limitation 12(e)(i).

For all the foregoing reasons, Patent Owner shows that the Menace bow meets the limitations of claim 12.

iv. Claim 19

Patent Owner contends that independent claim 19 is similar to claim 1 except for the following limitations. PO Resp. 47.

For limitations 19(b)(i)–(ii), Patent Owner relies on its contentions for limitations 12(b)(i)–(ii). PO Resp. 47.

For limitation 19(c), Patent Owner relies on its contentions for limitations 12 (c)(i)–(ii). PO Resp. 47.

For limitation 19(e), Patent Owner relies on its contentions for limitations 12(e)(i)–(ii). PO Resp. 48.

For limitations 19(f)(i)–(ii), Patent Owner relies on its contentions for limitation 11(g). PO Resp. 48.

Petitioner does not dispute Patent Owner's mapping of the Menace bow to the limitations of claim 19.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets the limitations of claim 19.

(1)*Dependent Claims 3, 4, 8–10, 13, 14, 16, and 17*

For these dependent claims, Patent Owner sets forth evidence and argument concerning whether the Menace bow meets the limitations of these dependent claims. PO Resp. 48–61.

Petitioner does not address Patent Owner's mapping of these dependent claims.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets the limitations of claims 3, 4, 8–10, 13, 14, 16, and 17.

v. Menace Bow Conclusion

As discussed above, we find that a physical example of the Menace bow which worked for its intended purpose was made no later October 28, 2008. Based on our analysis of the limitations of the challenged claims 1, 3, 4, 8–14, and 16–19, we find that the Menace bow reflected a reduction of the subject matter of these claims to practice no later than October 27, 2008. Consequently, Petitioner has not shown by a preponderance of the evidence that Darlington is prior art to challenged claims 1, 3, 4, 8–14, and 16–19 based on reduction to practice reflected by the Menace bow.[16]

b. Monster Bow

i. Claim 1

a) Limitations 1(Pre), 1(a), 1(b)(i), and 1(c)

Patent Owner contends that the photographs of the Monster bow in the June 2009 review and the Monster '775 bow "show the bow in a brace condition with a riser (52) supporting both a first (60) and a second limb (62)" where "[e]ach limb supports a rotating cam (70, 72) on a respective axle (18, 19), with a drawstring (20) extending between the two cams (70, 72)." PO Resp. 61–62 (citing Ex. 2003, 2); Ex. 2018 ¶ 86.

Patent Owner provides the following annotated photographs of the Menace bow illustrated in the June 2009 review and the Menace '817 bow:

[16] Patent Owner provides contentions and evidence that the '473 Provisional provides written description support for the Challenged Claims. PO Resp. 76–81. Petitioner does not dispute Patent Owner's contentions or evidence. *See generally* Pet. Reply.

EX2003, 2 (annotated); EX2017, App.C, Photo 2 (annotated).

PO Resp. 62. On the left is the photograph of the fully strung Monster bow in the June 2009 review (Ex. 2003, 2) and on the right is a photograph of the Monster '775 bow (Ex. 2017, App. C, Photo 2). *Id.* Patent Owner adds numerals in red corresponding to the element numbers quoted above with arrows pointing to the corresponding elements in the bows shown in each of the photographs. *Id.*

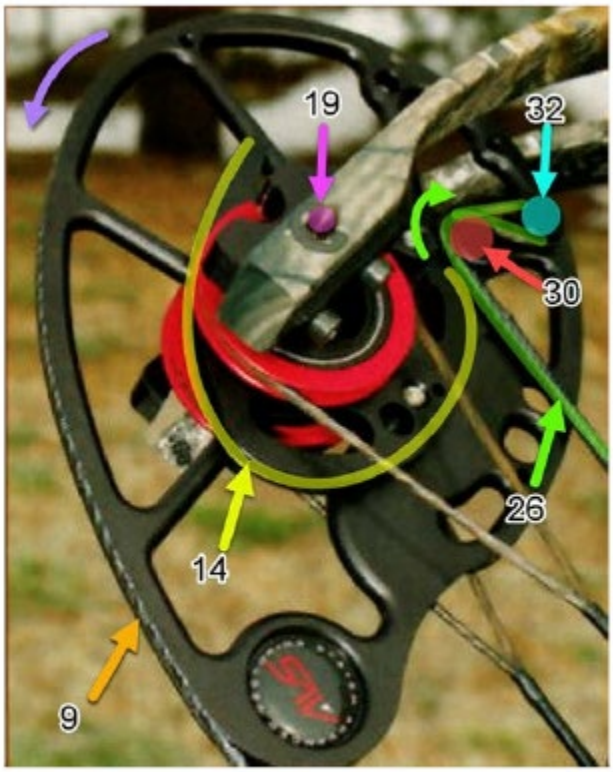
Petitioner does not dispute Patent Owner's mapping of the Monster bow to the subject matter of the preamble or the other limitations.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets the subject matter of the preamble of claim 1 and limitations 1(a), 1(b)(i), and 1(c).

b) Limitations 1(b)(i)–(v)

Patent Owner contends that "[t]he Monster article includes a closeup photograph of one of the Monster bow cams" with "[t]he drawstring track (9), cam track (14), capstan (30), and terminal (32) are each clearly visible" and "the cam track offset in a separate plane from the drawstring track." PO Resp. 61–62 (citing Ex. 2018 ¶ 64); Ex. 2018 ¶ 87.

Patent Owner provides the following annotated version of the Monster bow illustrated in the June 2009 review:



EX2003, 1 (annotated).

PO Resp. 63. The photograph depicts a cam of the fully strung Monster bow in the June 2009 review (Ex. 2003, 1) to which Patent Owner adds numerals corresponding to the element numbers quoted above with arrows pointing to the corresponding elements in the cam shown in the photograph. *Id.*

Petitioner does not dispute Patent Owner's mapping of the Monster bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Menace bow meets limitations 1(b)(i)–(v).

c) Limitations 1(d)(i)–(ii)

Patent Owner provides the following annotated version of the Monster bow cam appearing in the June 2009 review:

EX2003, 1 (annotated).

PO Resp. 64. The photograph depicts a cam of the fully strung Monster bow in the June 2009 review (Ex. 2003, 1) to which Patent Owner adds purple highlighting, yellow high lighting, and green highlighting to various portions of the power cable and the numeral 26 with a green arrow pointing to the green portion of the power cable. *Id.*

Patent Owner contends that the Monster bow "power cable (26) had a straight portion (green) extending from one cam toward the other cam," and "[a] portion (purple) of the Monster bow's power cable wrapped around the capstan (30) and a portion (yellow) that loops around the terminal (32)." PO Resp. 63–64; Ex. 2018 ¶ 88.

Petitioner does not dispute Patent Owner's mapping of the Monster bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets limitations 1(d)(i)–(ii).

d) Limitations 1(e) and 1(f)

Patent Owner provides the following annotated version of the Monster bow cam appearing in the June 2009 review:

EX2003, 1 (annotated).

PO Resp. 65. The photograph depicts a cam of the fully strung Monster bow in the June 2009 review (Ex. 2003, 1) to which Patent Owner adds red highlighting to capstan 30, green highlighting to portions of the power cable 26, a green clockwise arrow around capstan 30, and a purple counterclockwise arrow near the left edge of the cam. *Id.*

Patent Owner contends that "the Monster bow power cable (26) wrapped from left to right around the capstan (30), as indicated by the green arrow, while the cam rotated in the opposite direction, indicated by the

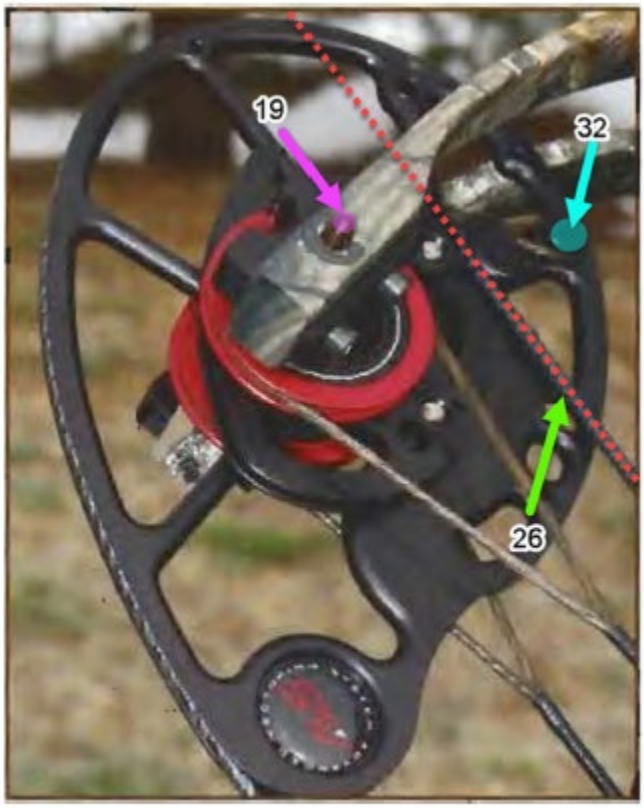
purple arrow, when the bow is drawn from the brace condition." PO Resp. 64 (citing Ex. 2018 ¶ 79).

Petitioner does not dispute Patent Owner's mapping of the Monster bow to these limitations of claim 1.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets limitations 1(e) and 1(f).

e) Limitation 1(g)

Patent Owner provides the following annotated version of the Monster bow cam appearing in the June 2009 review:



EX2003, 1 (annotated).

PO Resp. 66. The photograph depicts a cam of the fully strung Monster bow in the June 2009 review (Ex. 2003, 1) to which Patent Owner adds red

dashed highlighting to power cable 26, a pink arrow pointing to axle 19, and an aqua arrow pointing to terminal 32.

Patent Owner contends that "[t]he photograph of the Monster bow shows the cam in the brace condition and has been annotated with a dashed line approximating the plane formed by the straight portion of the power cable (26)" and "axle (19) and the terminal (32) are on opposite sides of the plane formed by the straight portion of the power cable (26)." PO Resp. 65 (citing Ex. 2019 ¶ 19).

Petitioner contends that Patent Owner "has not shown that the Menace or Monster bows met the requirement of limitation 1(g) of 'wherein, in the brace condition, the elongate straight portion defines a plane.'" Pet. Reply 8.

As discussed above in connection with limitation 1(g) for the Menace bow, we are not persuaded by this contention.

We have reviewed Patent Owner's contentions and evidence in light of Petitioner's contentions and find that Patent Owner has shown that the Monster bows[17] meet limitation 1(g).

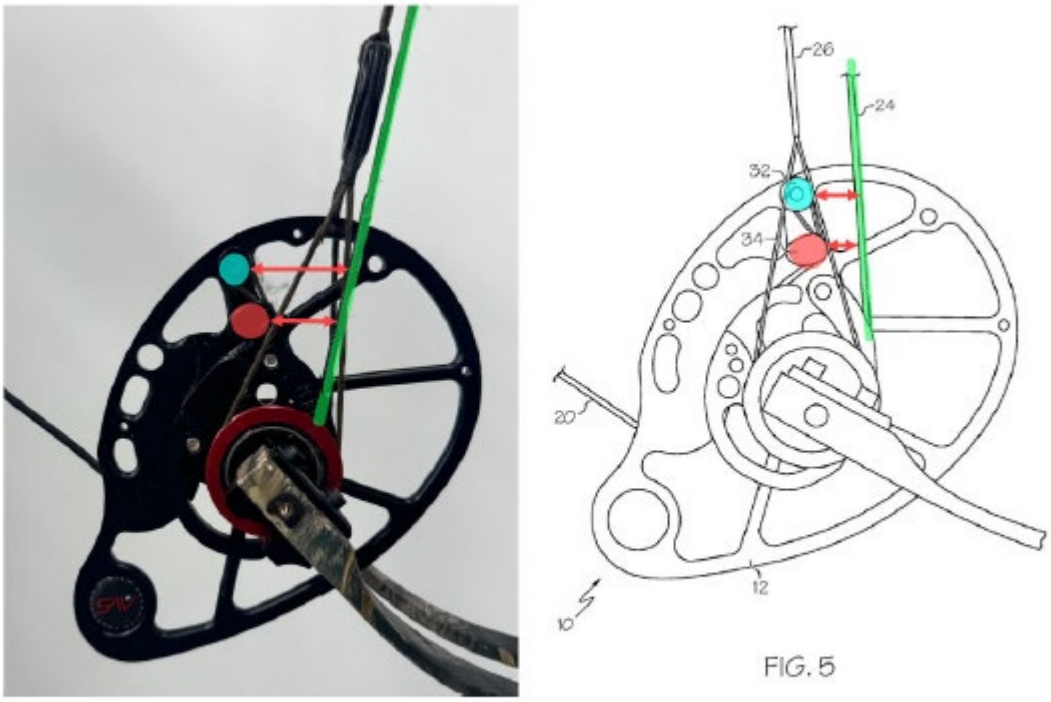
For all the foregoing reasons, we find that the Monster bow meets all limitations of claim 1.

ii. Claim 11

Patent Owner contends that independent claim 11 is similar to claim 1 except for limitation 11(g). PO Resp. 66. Patent Owner contends that

[17] Patent Owner also contends that "[a]ll features of claim 1 are also depicted in the photographs of the Monster '775 bow." PO Resp. 66 (citing Ex. 2017, App. C; Ex. 2018 ¶¶ 52–60). Petitioner does not dispute Dr. Reinholtz's testimony concerning the Monster '775 bow for claim 1.

"[w]hen the Monster bow is drawn its capstan is located closer to the elongate straight portion [of the power cable] than the terminal." *Id.* at 67 (citing Ex. 2003; Ex. 2017, App. C, Monster Bow.mp4; Ex. 2018 ¶¶ 52–60). Patent Owner supports its contention with the following annotated images:



EX2017, App.C, Photo 7; EX1001, FIG. 5 (annotated).

On the left is an annotated version of photograph of the Monster '775 cam and on the right is an annotated version of Figure 5 of the '989 patent. PO Resp. 40. Petitioner annotates the cam photograph with green highlighting of the power cable and red arrows from the power cable to the capstan and terminal. *Id.* Patent Owner annotates Figure 2 with green highlighting on the power cable. *Id.*

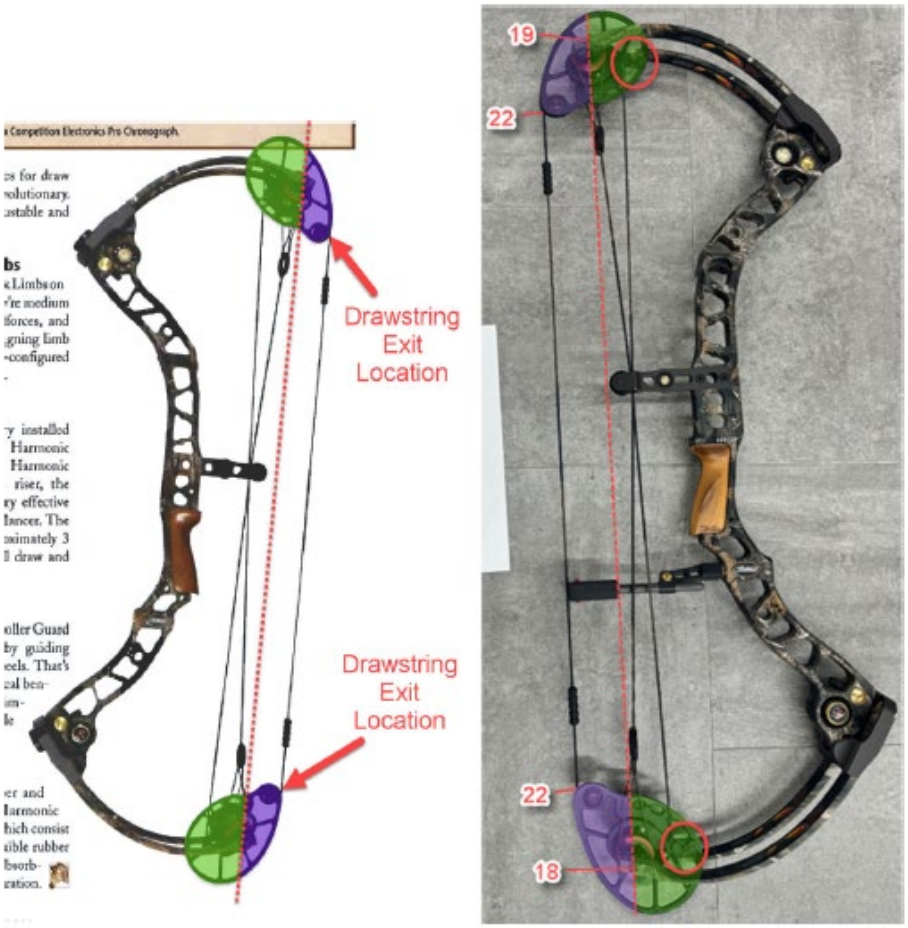
Petitioner does not dispute Patent Owner's mapping of the Monster bow to claim 11.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets the limitations of claim 11.

iii. Claim 12

Patent Owner contends that claim 12 is similar to claim 1 except for limitations 12(b)(i)–(ii), 12(c)(i)–(ii), and 12(e)(i)–(ii). PO Resp. 67.

For these limitations, Patent Owner first refers to its contentions for limitation 1(c). PO Resp. 68. Patent Owner provides the following annotated photographs of the Monster bow from the June 2009 review and the Monster '775 bow:



EX2003, 2 (annotated); EX2017, App. C, Photo 2 (annotated).

On the left is the photograph of the Monster bow in the June 2009 review (Ex. 2003, 2) and on the right is a photograph of the Monster '775 bow (Ex. 2017, App. C, Photo 2). PO Resp. 69. On each photograph, Patent Owner adds a dashed red line separating the upper and lower cams into a green shaded portion and a purple shaded portion and adds red text reading "Drawstring Exit Location" at the top and bottom of the photograph with red arrows pointing to the location on the cams where the drawstring exits. *Id.*

Patent Owner contends that the "dashed red line show[s] the axle plane defined by the two axles (18,19) and to indicate the drawstring exit location (22) on each cam." PO Resp. 68 (citing Ex. 2018 ¶ 91). According to Patent Owner, "[t]he axle plane of the Monster bow divides each cam into a first part (green) and a second part (purple). The capstan and terminal (circle) were in the green first part, and the drawstring exit (22) was in the purple second part." *Id.*

Petitioner argues that the red dashed lines shown in these photographs suffer from the same alleged deficiencies as the dashed lines relied on for limitation 1(g). Pet. Reply 10. For the reasons discussed above for limitation 1(g), this contention is not persuasive.

We have reviewed Patent Owner's contentions and evidence, in light of Petitioner's contentions, and find that Patent Owner has shown that the Monster bow meets limitations 12(b)(i)–(ii), 12(c)(i)–(ii), and 12(e)(1).

For limitation12(e)(ii), Patent Owner provides the following annotated photographs of the Monster bow cam:

EX2003, 2 (annotated); EX2017, App. C, Photo 3 (annotated).

On the left is a photograph of the Monster cam in the June 2009 review (Ex. 2003, 2 and on the right is a photograph of the Menace '775 bow (Ex. 2017, App. C, Photo 3). PO Resp. 69. In both photographs, Patent Owner adds a red dashed line representing the axle plan with a red arrow from the axle plane to the capstan 30 and an aqua arrow from the axle plane to the capstan. *Id.* Patent Owner contends that this photograph shows that "[t]he distance . . . between the terminal (32) and the axle plane was greater than the distance . . . between the capstan (30) and the axle plane." *Id.* at 68–69.

Other than the contention concerning the red dashed line discussed above, Petitioner does not dispute Patent Owner's mapping of the Monster bow to limitation 12(e)(ii).

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets limitation 12(e)(i).

For all the foregoing reasons, Patent Owner shows that the Monster bow meets the limitations of claim 12.

iv. Claim 19

Patent Owner contends that independent claim 19 is similar to claim 1 except for the following limitations. PO Resp. 70.

For limitations 19(b)(i)–(ii), Patent Owner relies on its contentions for limitations 12(b)(i)–(ii). PO Resp. 70.

For limitation 19(c), Patent Owner relies on its contentions for limitations 12 (c)(i)–(ii). PO Resp. 70.

For limitation 19(e), Patent Owner relies on its contentions for limitations 12(e)(i)–(ii). PO Resp. 70–71.

For limitations 19(f)(i)–(ii), Patent Owner relies on its contentions for limitation 11(g). PO Resp. 70.

Petitioner does not dispute Patent Owner's mapping of the Monster bow to the limitations of claim 19.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets the limitations of claim 19.

v. Dependent Claims 2–4, 7–10, 13–18

For these dependent claims, Patent Owner sets forth evidence and argument concerning whether the Monster bow meets the limitations of these dependent claims. PO Resp. 71–76.

Petitioner does not address Patent Owner's mapping of these dependent claims.

We have reviewed Patent Owner's contentions and evidence and find that Patent Owner has shown that the Monster bow meets the limitations of claims 2–4, 7–10, 13–18.

vi. Monster Bow Conclusion

As discussed above, we find that a physical example of the Monster bow which worked for its intended purpose was made no later March 23, 2009. Based on our analysis of the limitations of the Challenged Claims, we find that the Monster bow reflected a reduction of the subject matter of these claims to practice no later than March 23, 2009. Consequently, Petitioner has not shown by a preponderance of the evidence that Darlington is prior art to the Challenged Claims based on reduction to practice of the Menace bow.

III. CONCLUSION[18]

Weighing the competing evidence and testimony, we determine that Petitioner fails to establish by a preponderance of the evidence that the Challenged Claims of the '989 patent are unpatentable.

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

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–4, 7–19	103(a)	Darlington, Islas		1–4, 7–19

IV. ORDER

In consideration of the foregoing, it is hereby:

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–4 and 7–19 of the '989 patent have not been shown by a preponderance of the evidence to be unpatentable;

FURTHER ORDERED that within 7 days of the entry of this Decision, the parties shall submit an agreed upon redacted public version of this Decision to be entered into the record; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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