

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HUNTER'S MANUFACTURING COMPANY, INC.
d/b/a TENPOINT CROSSBOW TECHNOLOGIES,
Petitioner,

v.

RAVIN CROSSBOWS, LLC,
Patent Owner.

Case No. **IPR2023-00407**
Patent No. **9,354,015**

PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE

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Hunter's Manufacturing Company, Inc. d/b/a TenPoint Crossbow Technologies' ("TenPoint") Petition ("Pet," Paper 1) explained how claim 1 of Ravin Crossbows, LLC's ("Ravin") U.S. Patent 9,354,015 (the "'015 Patent") is invalid on numerous grounds. Ravin's Preliminary Response (Paper 9) included several arguments that were outright frivolous or at least misleading. Rejecting several of Ravin's arguments, the Board instituted review. ("Dec.," Paper 13.) However the Board seemed preliminarily receptive to several of Ravin's meritless arguments, so TenPoint filed its Motion to Submit Supplemental Information (Paper 19) to set the record straight.¹ Ravin nevertheless repeated them in its post-institution Response ("Resp.," Paper 25). But Ravin's arguments are unpersuasive (though word-count limitations prevent correcting every error here), and TenPoint has certainly established by at least a preponderance that claim 1 is unpatentable.

I. TEATER'S TESTIMONY SHOULD BE ACCORDED LITTLE TO NO WEIGHT.

As an initial matter, the testimony of Ravin's proffered expert Jonathan Teater

¹ Ravin's Opposition (Paper 20) to this Motion made only procedural arguments but did not challenge its substance. Because the Motion has not yet been granted, TenPoint submits that information with this Reply. *See Rembrandt Diagnostics, LP v. Alere, Inc.*, 76 F.4th 1376, 1383-84 (Fed. Cir. 2023) (introduction of new evidence in reply is expected).

(Exs. 2029, 1034-1035) should be given little to no weight because of his lack of credibility. This was his first time being an expert witness, and he had never testified (even in a deposition) before. (Ex. 1034, 7:6-21.) Yet he testified that he personally drafted 95% of his 151-page declaration, while spending just 40 hours in total in this IPR (from start until his deposition). (*Id.* at 22:25-23:3, 24:10-26:24, 274:18-277:17.) If that entire time was dedicated just to typing up his declaration, it would require typing 3.5 pages/hour, but would leave no time to read any of the numerous documents that Teater claims to have reviewed (e.g., 68-page Petition, numerous prior art references, Dr. Batzer's 96-page declaration and 237-page deposition transcript). That is not credible. (*See* Ex. 1037 ¶8.) And despite reviewing his declaration the day before the deposition, he repeatedly wanted to consult it before answering various questions about matters expressed therein, showing his unfamiliarity with it, further supporting that he did not actually draft it. (*See, e.g.,* Ex. 1034, 75:16-78:10, 280:10-283:13.)

He refused to admit that helical power cable journals were known in the crossbow or compound bow industry prior to 2013 (*id.* at 81:11-82:22, 92:15-93:15), even though Norkus, Park, and the three Stanziale references (all of which Teater claimed to have read) disclose them (*see* Pet. 33, 38, 42-43, 48-51; Ex. 1037 ¶9). He also initially argued that existing limbs had "almost no movement," even though that would mean that such bows would not work because they would store no energy –

which, upon realization, he tried to walk back. (Ex. 1034, 141:3-144:20; Ex. 1037 ¶13.) If Teater is willing to skirt the truth on these matters, he cannot be trusted on any others.

He also went back on his testimony *multiple* times, suggesting either unfamiliarity, obstinacy, or lack of candor. (See Ex. 1034, 152:16-154:5, 193:2-199:25, 202:13-204:12, 208:11-210:22, 215:19-219:12, 244:17-245:13, 268:9-269:25, 274:18-283:13; Ex. 1035, 336:4-20.)

Additionally, despite reciting the preponderance standard in his declaration (Ex. 2029, ¶14), he did not know its meaning. (Ex. 1034, 74:9-14.) His understanding of secondary considerations on obviousness is also wrong. (*Id.* at 137:12-138:3.) And he based his characterization of the ‘015 Patent’s alleged innovativeness on features that admittedly are not part of claim 1. (*Id.* at 145:9-151:10.) This undermines his conclusions about the patentability of that reviewed claim.

II. CLAIM CONSTRUCTION

A. “mounted to”

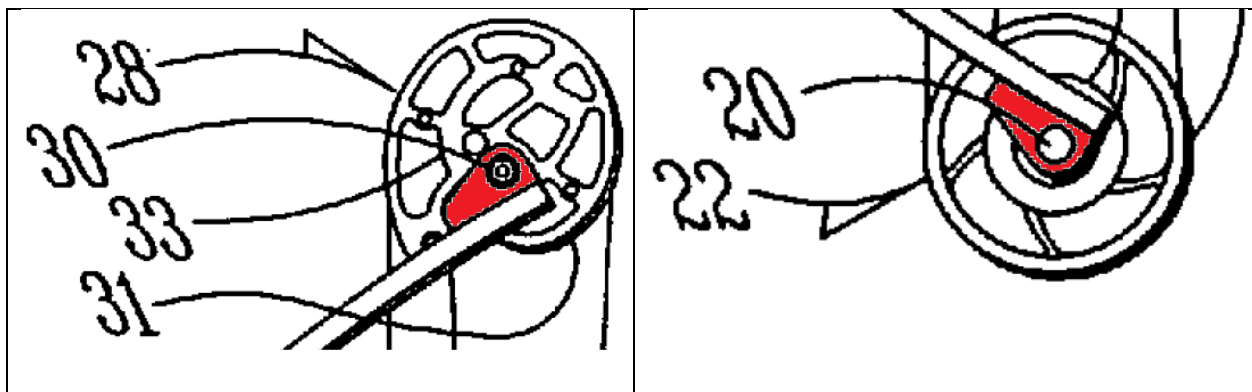
Both parties argue that “mounted to” should be given its plain and ordinary meaning. (Pet. 26; Resp. 4.) Based on Ravin’s arguments in the parallel infringement suit against TenPoint in the Northern District of Ohio (“Infringement Suit”), the Petition identified several potential disputes: (a) whether “mounted to”

must be limited to just direct mounting; (b) whether the two-word phrase “mounted to” requires rotation about a fixed axis; and (c) whether “mounted to” prohibits all other movements. (Pet. 26-28.)

Regarding the direct/indirect issue, Ravin has since conceded during the claim construction hearing in the Infringement Suit that the term is not limited to just direct mounting. (See Ex. 1036, 82:4-7, 87:1-5, 18-22; 35 U.S.C. §301(a)(2), (d) (permitting the Office to consider patent owner statements on claim scope to determine the proper meaning of a claim in an IPR).) Even aside from that concession, TenPoint’s construction is supported by the evidence.

The best evidence for construing a claim term is the patent’s intrinsic evidence, which includes related applications in the same patent family. *E.I. du Pont de Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1068-70 (Fed. Cir. 2019). Unless otherwise compelled, the same term in the same patent or related patents carries the same construed meaning. *In re Rambus Inc.*, 694 F.3d 42, 48 (Fed. Cir. 2012); see also *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1312 (Fed. Cir. 2014) (statements made in related, later-prosecuted patents may inform the meaning of earlier-issued claims). Teater, in contrast, had not reviewed any patents related to the ‘015 Patent (Ex. 1034, 89:7-10, 111:7-112:9), which undermines his testimony.

During prosecution, the Examiner cited to Kempf '001² as disclosing string guides “mounted to” the respective limbs. (Ex. 1002, 105-06; Ex. 1008, Fig. 1, 2:9-29.) But those string guides are not directly “mounted to” their respective limbs. Rather, the string guides 22, 28 receive respective axles 20, 30, which are themselves received in their respective mounting brackets (unnumbered, shown in red in the below excerpts of Fig. 1), which are then secured to the respective limbs 18, 16. (Ex. 1037 ¶25.) The Examiner clearly understood this indirect connection of the string guides to the limbs (through intervening components) to meet this claim term.



The '015 Patent is part of a family that expressly claims its benefit under 35 U.S.C. §120. That family supports TenPoint's construction. For example, U.S. Patent 9,879,936 (the "'936 Patent," Ex. 1027) recites (in its claim 1, like claim 1 of

² Teater apparently did not review it. (Ex. 2029 ¶9; Ex. 1034, 91:7-18.)

the ‘015 Patent) that the first and second cams³ are each “mounted to the [respective] bow limb.” Claim 9 (which depends on claim 1) further requires the cams to be mounted to the respective limbs “with first and second axes of rotation offset from distal tips of the bow limbs by about 1.0 inch to about 3.0 inches.” The specification explains that this offset is accomplished by attaching the cams 440A, 440B to the limbs 420 using axle mounts 442A, 442B (Ex. 1027, 9:63-10:13), and the referenced Fig. 14A confirms that the cams are not actually mounted directly to the limbs but rather by having an axle going through each cam and secured to a bracket (called axle mount 442A, 442B), which is then secured to the respective limb 420A, 420B. (*See also id.* at Figs. 21A, 23A; Ex. 1037 ¶¶ 16-20.)

As another example, claim 1 of U.S. Patent 10,254,073 (the “’073 Patent,” Ex. 1028) recites that the first and second string guides are each “mounted to the [respective] flexible limb by a [respective] axle mount and rotatable around a [respective] axis located a fixed distance from the [respective] flexible limb by the [respective] axle mount.” The specification parallels this language, stating: “Cams 440A, 440B (‘440’) are attached to the limbs 420 by axle mounts 442A, 442B (‘442’).” (Ex. 1028, 10:47-48.) These statements confirm that when this patent

³ The patents explain that a cam is included in the term “string guide.” (Ex. 1027, 6:4-6; *see also* Ex. 1001, 4:9-11; Ex. 1034, 166:10-11.)

family refers to the string guides being “mounted to” the limbs, they are not limited to just direct mounting but also include mounting through intervening components. (Ex. 1037 ¶¶ 21-24.) *See Delta T LLC v. MacroAir Techs., Inc.*, No. EDCV 20-728-GW-JPRx, 2021 WL 3721455, at *20 (C.D. Cal. Mar. 29, 2021) (“mounted” includes direct and indirect attachment in light of the specification); *cf. Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1342 (Fed. Cir. 2013) (plain meaning of “connected to” includes direct and indirect connections).

Teater’s evasiveness and feigned inability to understand the word “indirectly” (Ex. 1034, 96:1-11, 99:12-100:12) undermines his testimony on this point (Ex. 1037 ¶26), although even he eventually agreed that some components *are* mounted indirectly if required for functionality (Ex. 1034, 119:6-10). He also relied on other patents, which he testified do not even use the phrase “mounted to,” as extrinsic evidence to construe this term (*id.* at 102:17-104:4), which severely undercuts the propriety of his construction.

Turning to Ravin’s argument that claim 1 requires the string guides to be rotatable around their respective axes, that is true, but not because of “mounted to”; rather, this is because of the *subsequent* claim language: “rotatable around a [first/second] axis.” (Pet. 26-27; Ex. 1034, 120:19-121:14 (Teater agrees).) “Mounted to” itself neither mentions nor inherently implies any movement (including rotation). (Ex. 1016 ¶137.) For example, the ‘073 Patent discloses “a

center rail 402 with a riser 404 mounted at the distal end 406” (Ex. 1028, 9:10-11.) It also discloses that an “arrow rest 750 is mounted to distal end 776 of the center rail 402” (*Id.* at 18:5-6.) And its claim 31 recites “an optical scope mounted to a scope mount on the crossbow.” There is no indication that *any* of these mounted components must rotate; indeed, such movement would severely compromise the operation and accuracy of the crossbow. (Ex. 1037 ¶27; Ex. 1034, 115:9-116:2, 119:6-15 (Teater agreeing).)

Turning to Ravin’s last argument (that claim 1 prohibits all string guide movements with respect to the limbs other than rotation about a fixed axis), the two-word term “mounted to” says nothing about prohibiting all movement except rotation. (Ex. 1034, 122:2-8 (Teater agrees).) Even if the analysis were expanded to include additional claim language (namely, “rotatable around a [first/second] axis”), claim 1 is met if the string guides can rotate around the respective axes; there is no implication that a positive requirement to rotate somehow silently imports a negative prohibition on all other movements. (Ex. 1016 ¶139.) After all, claim 1 is an open-ended claim with “comprising” transitional language. Ravin’s desperate plea (that “all figures” allegedly show only rotation and no other movement) is an improper attempt to import limitations from the drawings into the claims. (*See* Pet. 27-28; *Sisvel Int’l v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1236-37 (Fed. Cir. 2023) (warning against limiting claims to specific embodiments disclosed in the

specification); *Phillips v. AWH Corp.*, 415, F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (even if only one embodiment is disclosed).)

B. “reverse draw configuration”

The claim alone is clear regarding what is “a reverse draw configuration”: having “the draw string adjacent the down-range side of the string guides in a released configuration, wherein the draw string translates from the down-range side toward the up-range side . . . to a drawn configuration.” (Ex. 1037 ¶28.) The specification and drawings confirm this – that the “reverse draw configuration,” as used in the ‘015 Patent, simply refers to the draw string being on the down-range side of the string guides when the bow is in a released (or uncocked) position, where the string is drawn toward the up-range side during cocking. (Ex. 1001, 1:41-46 (referencing Figs. 1-3), 3:46-4:1 (referencing Figs. 4-6), 5:20-26 (referencing callout 174 in Fig. 10); Ex. 1037 ¶29.) The prosecution history (namely, the Examiner’s rejection and other cited prior art) confirms this construction. (See Ex. 1002, 105-06 (Examiner citing Kempf ‘001 as meeting this claim term); Ex. 1008, 2:30-53, Figs. 1, 3; Ex. 1013, [0021] and [0042] (referencing Fig. 4), [0029] and [0054] (referencing Fig. 12), [0033] and [0059] (referencing Fig. 16); Ex. 1037 ¶¶ 30-31.)

Ravin, for the first time in its Response, seems to argue that this “reverse draw configuration” requires the *limbs* to be facing forward. (See Resp. 61, 72-73; Ex. 1037 ¶ 32.) But Ravin offers no evidence or analysis why this would be the case,

when the wording itself talks about the *string* in relation to the string guides and says nothing about limbs. Moreover, the above-discussed intrinsic evidence shows that Ravin is wrong. The ‘015 Patent’s Fig. 10 shows a bow with limbs in the common shooter-facing orientation and yet is still labeled reverse draw configuration 174. (See Ex. 1037 ¶35; Ex. 1034, 139:1-25 (Teater agrees).) Figs. 1-6 do not even show limbs and yet are likewise in the reverse draw configuration because of where the string is in relation to the string guides in the released and drawn positions. (Ex. 1037 ¶35.) Kempf ‘001 (cited by the Examiner as meeting this term) shows all bows with shooter-facing limbs. (*Id.*; Ex. 1008, Figs. 1, 3-4.) The above-cited Darlington figures all show shooter-facing limbs. (Ex. 1013, Figs. 4, 12, 16.) Darlington does show two embodiments with limbs facing away from the shooter, but it calls this configuration the “reverse limb” (not “reverse draw”) or “limb forward” configuration. (*Id.* at [0061], Figs. 17-18.) And it illustrates the difference between a “reverse *limb*” configuration (which depends on the limb orientation) and the “reverse *draw*” configuration (which depends on how the bowstring is secured in relation to the string guides). (*Id.*; Ex. 1037 ¶36.)

III. CLAIM 1 IS UNPATENTABLE ON MULTIPLE GROUNDS.

Ravin’s obviousness arguments at their core assert that a person of ordinary skill in the art (“POSA”) could not physically combine the references. But the “test for obviousness is not whether features of a secondary reference may be bodily

incorporated into the structure of the primary reference,” and such assertions “are basically irrelevant.” *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). Instead, the question is whether a POSA would have been motivated to combine the references’ teachings to achieve the claimed invention. *Id.*; *Samsung Elecs. v. Elm 3DS Innovations*, 925 F.3d 1373, 1382 (Fed. Cir. 2019) (obviousness does not require physical substitution of elements; rather, would a POSA, having all the references’ teachings before him, be able to produce the structure defined by the claim). Any given course of action often has simultaneous advantages and disadvantages, but this does not necessarily obviate motivation to combine. *Gen. Elec. Co. v. Raytheon Techs. Corp.*, 983 F.3d 1334, 1351 (Fed. Cir. 2020). That is because an option need not be the *best* option – merely a *suitable* option. *Id.* A POSA would be able to make any adjustments required to make the combination operable. *See id.* at 1352; *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1366 (Fed. Cir. 2018) (rejecting notion that POSA would just blindly incorporate one reference’s exact methodology into the other).

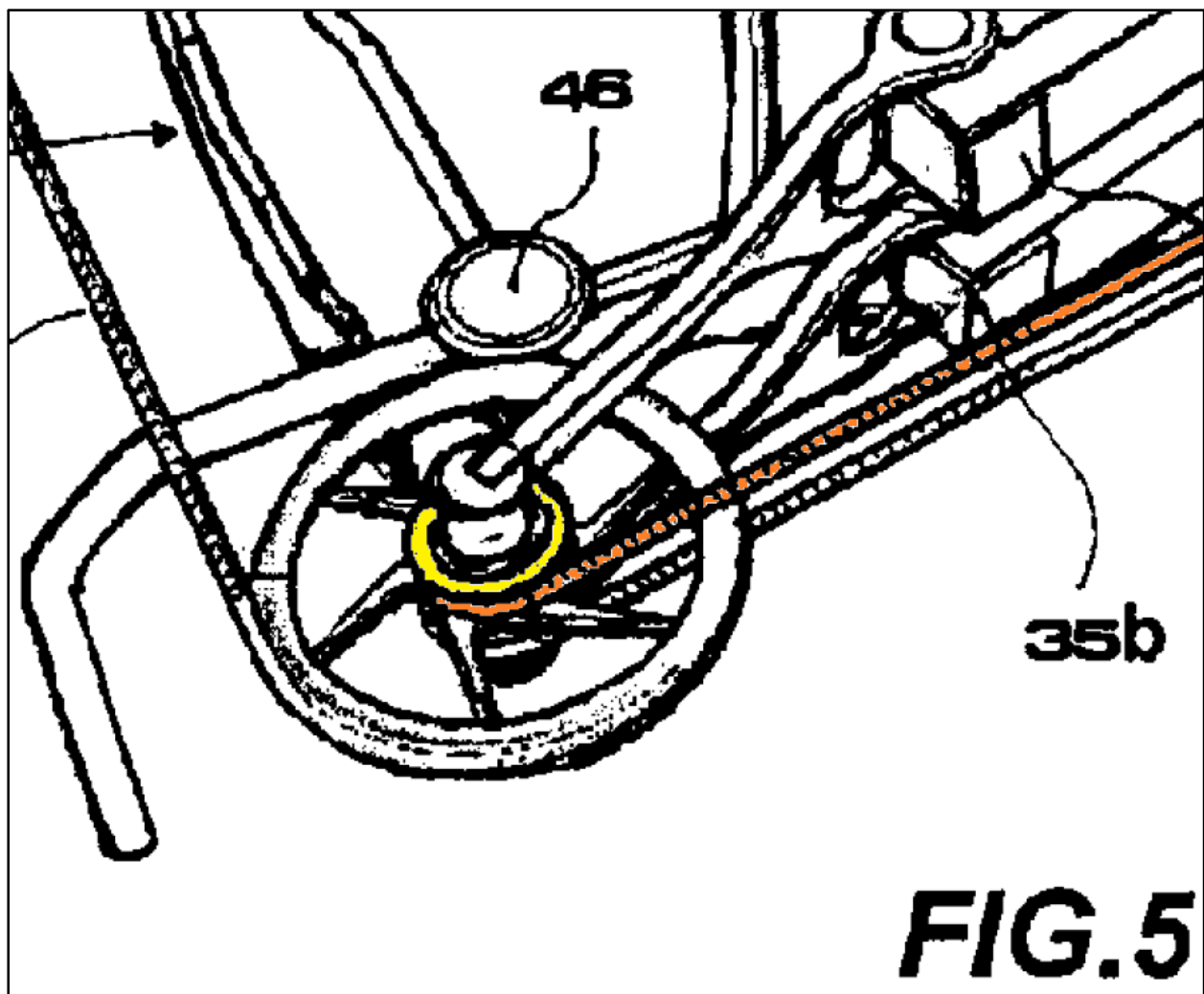
A. Ground 1

Under the proper construction of “mounted to,” Stanziale ‘302 undeniably discloses string guides mounted to their respective limbs. Ravin’s arguments depend upon the term requiring only a direct connection and prohibiting any other relative movement other than rotation, which is incorrect. (Ex. 1037 ¶40.)

Ravin spills much ink discussing alleged “degrees of freedom.” (*See* Resp. 13-18.) But the phrase appears nowhere in the ‘015 Patent. Additionally, Ravin and its so-called expert fundamentally err in their understanding of “degrees of freedom” (which seriously calls into question the expert’s qualifications and opinions). (Ex. 1037 ¶¶ 41-42.) For example, Stanziale ‘302’s crossbow does not have separate X and Y degrees of freedom (*see* Resp. 15). The string guides 50 are connected to their respective limbs 10 by the triangular levers 40, which have their pivots 46 connected via a bar 47. (Ex. 1007, Figs. 1-5, 10, [0111]-[0112].) That means that if a string guide is moved along Ravin’s indicated X axis, the string guide will also be forced to move along Ravin’s indicated Y axis (and vice versa) because it would be pivoting about pin 38. (*See id.* at Figs. 1-5, 10-11, [0075]-[0077], [0084], [0088], [0114].) It is impossible to move either string guide in an X axis without affecting the Y axis (and vice versa), so Ravin is badly mistaken that these are distinct degrees of freedom. (Ex. 1037 ¶43.) And once the bowstring 31 is received in the string guides 50, all of the alleged degrees of freedom collapse into just one – the movement of the bowstring. When the string 31 is drawn, that rotates the string guides 50 (i.e., Ravin’s Z axis), winding up the power cables 32, which pull the string guides 50 toward the proximal end 205 of the stock 2 (i.e., Ravin’s X axis) causing them (through the rigid triangular levers 40) to also move laterally (i.e., Ravin’s Y axis). This is the same single degree of freedom as disclosed in all

embodiments in the '015 Patent, where drawing the string causes all respective motions of the string guides. (*Id.* at ¶44.)

Turning to the power cable displacement, Ravin argues that Stanziale '302's Fig. 3 shows the cables 37 being displaced towards the planes of rotation. (Resp. 19-21.) However, Fig. 5 shows the opposite – the *unwound* cable's leading edge on the *bottom* of the journal (orange) – such that it will wind upwardly along the yellow journal, *away* from the planes of rotation. This configuration plainly meets the “away from” limitation. (Ex. 1037 ¶¶ 46-47.)



And if Stanziale ‘302 is deemed to show both configurations (away from and towards), then that matches with the *Kennametal* line of cases: different disclosed arrangements, where a POSA would at once envisage implementing any of them. (Ex. 1037 ¶48; see *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1274 (Fed. Cir. 2017).) Ravin’s reliance on *Nidec* is unpersuasive because Stanziale ‘302 is not “missing” the “away from” limitation.

B. Ground 2

If there were any doubt regarding Stanziale ‘302’s anticipation of claim 1, it nevertheless renders the claim obvious. Stanziale ‘302 discloses that “the perimetral track . . . 521 may . . . have a spiral or helical shape so as to wind a plurality of turns of a flexible element,” i.e., power cable, explaining that “a helix has a three-dimensional development and then winds a plurality of turns which are progressively coiled adjacent to each other.” (Ex. 1007, [0106].) Because those power cable journals 521 are helical and are positioned co-axially with the draw string journals 511, they inherently and of necessity extend perpendicular to the draw string journal plane of rotation. (Pet. 33; Ex. 1037 ¶¶ 51-54; Ex. 1034, 205:3-206:16.) Power cables 32 are received in the helical power cable take-up journals 521. (Pet. 35.) When the crossbow is drawn, those power cables wrap onto the helical journals and would necessarily be displaced along the respective axes with respect to the draw string planes of rotation (by virtue of being wound on helical journals). (*Id.* at 35-

36 (citing Ex. 1017, [0127]-[0129]); Ex. 1037 ¶51.) The only remaining question is the direction of displacement. (*See* Ex. 1037 ¶54.)

Because the power cable journals and the draw string journals (which form the planes of rotation) are co-axial, the directions of displacement are constrained (by virtue of the common axis) to just two: either towards the planes of rotation or away therefrom. (*Id.*; Ex. 1034, 213:8-10 (Teater agrees).) On the obvious-to-try rationale, the Petition explained that: (1) the helical nature of the power cable journals *requires* that the power cables received therein would necessarily need to extend in some direction relative to the planes of rotation, and (2) the common axis between the draw string journal and power cable journal limits those directions to just two – away or towards, so (3) with just two options available and one of them *required* to be chosen (i.e., the required predicates established), a POSA would find it obvious to try each, thus rendering the “away from” limitation obvious. (Pet. 36; *see also* Ex. 1037 ¶54; Ex. 1034, 213:11-21 (Teater agreeing); *Uber Techs. v. XOne, Inc.*, 957 F.3d 1334, 1340 (Fed. Cir. 2020) (finding obviousness where a POSA would have two predictable choices providing him with a simple design choice between them, even if they required different implementation).) But the Petition went even further and provided a reason for choosing the “away from” option: to avoid interference between the power cables 32 and the draw string 31. (Pet. 36; *see also* Ex. 1037 ¶55.)

Ravin worries about speculative cam lean, weight distribution, “potential for fatigue fractures,” and longevity of the crossbow. (Resp. 24-27.) But claim 1 recites no longevity limitations. Furthermore, Stanziale ‘302’s power cable journals 521 appear on both sides of the draw string journal 511, which balances the forces that could potentially create cam lean (assuming a POSA insisted on eliminating it, given that crossbows have operated for years with some cam lean). Having both power cable journals 521 wind away from the draw string journal 511 maintains the balance. (Ex. 1037 ¶¶ 56-60.) Also, a POSA would have sufficient skill to select the appropriate materials and dimensions of the disclosed components such that Ravin’s concerns are wholly overblown. (*Id.* at ¶¶ 58, 76, 91.)

C. Ground 3

Like Ground 1, under the proper construction of “mounted to,” Stanziale ‘062 indisputably discloses string guides mounted to their respective limbs. Ravin’s arguments necessarily depend upon the term requiring only a direct connection and prohibiting any relative movement other than rotation, which is incorrect. (*Id.* at ¶62.)

Ravin similarly errs on its alleged “degrees of freedom.” (*See* Resp. 31-33; Ex. 1037 ¶63.) Because the arms 620 (to which the string guides 145-146-147 are secured) pivot about axis 693 (via pivot 623), movement of the string guides along Ravin’s indicated X axis also requires movement along Ravin’s indicated Y axis

(and vice versa). (See Ex. 1011, Figs. 17-21, 27:15-19, 28:25-28; Ex. 1037 ¶64.) And once the bowstring 31 is installed, there is but one degree of freedom. Drawing the string 31 rotates the string guides 145-146-147, winding up the power cables 37, which pull the string guides toward the proximal end 205 of the stock 2 and laterally. (Ex. 1037 ¶65.)

As for the power cable displacement direction, Stanziale '062 explains that the journal or groove 1461 has a helical shape, which allows it to “wind a plurality of turns” of the power cable 37. (Ex. 1011, 17:8-9.) Such a journal necessarily could have, at most, two winding directions – upwards or downwards along the axis of rotation – and a POSA would immediately envisage either of them. (Ex. 1037 ¶¶ 67-69.)

D. Ground 4

If there is any doubt regarding Stanziale '062's anticipation of claim 1, it nevertheless renders the claim obvious. Stanziale '062 discloses cables 37 in helical power cable journals 1461 that, due to the helical nature, must wrap along the axes 150 in a direction perpendicular to the respective plane of rotation of the co-axial draw string journals 1451 as the bow is drawn. (Pet. 38-39; *see also* Ex. 1037 ¶¶ 72-75; Ex. 1034, 211:2-11.) Because the power cables are displaced along the axes in relation to the respective planes of rotation as the bow is drawn (i.e., the design need), the remaining question is the direction of displacement, which due to the co-

axial nature of the journals 1451, 1461 must be either toward or away from the planes of rotation. (Pet. 39-40; Ex. 1037 ¶75; *see* Dec. 21-22 (quoting this argument).) With just two options available and one of them *required* to be chosen, a POSA would find it obvious to try each, thus rendering the “away from” limitation obvious. (Pet. 40; Ex. 1037 ¶75; Ex. 1034, 213:8-21 (Teater agreeing).) Ravin worries about speculative vibration or stability (*see* Resp. 36-37), but aside from the fact that claim 1 says nothing about either, a POSA would know how to select the parameters of the various components to implement such helical journals on the crossbow. (Ex. 1037 ¶76.)

E. Ground 5

The sole limitation of claim 1 that Ravin argues is missing from Stanziale ‘771 is the mounting of the string guides to their limbs. (Resp. 38-43.) But that argument necessarily depends upon “mounted to” requiring only a direct connection and prohibiting any relative movement other than rotation, which is incorrect. (Ex. 1037 ¶78.)

Ravin again errs on its alleged “degrees of freedom.” (*See* Resp. 38-43; Ex. 1037 ¶79.) Because the arms 32 (to which the string guides 145-146-147 are secured) pivot about axis 83 (via pins 274a-b), movement of the string guides along Ravin’s indicated X axis also requires lateral movement along Ravin’s indicated Y axis (and vice versa). (*See* Ex. 1012, Figs. 3, 7-9, 10D, 10:8-13, 11:18-23, 18:7-11;

Ex. 1037 ¶80.) And once the bowstring is installed, there is but one degree of freedom. Drawing the bowstring 31 rotates the string guides 145-146-147, winding up the power cables 37, which pull the string guides toward the proximal end 205 of the stock 2 and causing them to move laterally. (Ex. 1037 ¶81.)

F. Ground 6

Ravin's sole argument on Ground 6 is directed to the "away from" limitation of the winding power cables. But Stanziale '771's figures actually disclose the power cables being displaced "away from" the draw string journal planes of rotation, so there is no need to resort to obviousness. (Pet. 44 (*comparing* Ex. 1012 Fig. 4 *with* Fig. 5 (showing the power cable 37 wrap around the helical power cable journal 1461 and extend downwards along the axis 150, away from the draw string 31 within the plane of rotation of the co-axial draw string journal 1451 as the crossbow is drawn), *and comparing id.* Figs. 11 *with* 12 (same)); Ex. 1037 ¶¶ 83-85; Ex. 1034, 215:19-216:25 (Teater eventually agrees).)

If there were any doubt, TenPoint included an obviousness argument in Ground 6. (Pet. 45.) Because each set of draw string journals 1451 and helical power cable journals 1461 share a common axis of rotation 150, the direction of displacement of the helical journals 1461 and power cables 37 can only be either towards the planes of rotation or away therefrom. (Pet. 44-45; Ex. 1012, 17:4-5.) With just two options available and one of them required to be chosen, a POSA

would find it obvious to try each. (Pet. 44-45; Ex. 1037 ¶¶ 86-90; Ex. 1034, 213:8-21 (Teater agreeing).)

G. Grounds 7-8

On Grounds 7-8, Ravin does not dispute that the prior art references collectively disclose all of the limitations of claim 1 (*see also* Ex. 1034, 160:10-180:19); rather, Ravin disputes only the motivation to combine the references. (*See* Resp. 45-61.) Even there, Ravin concedes that Darlington teaches the desirability of increased power stroke and power, as do Norkus and Park. (*See id.* at 45, 53-54, 58-59; Ex. 1034, 154:19-22, 155:16-156:6 (Teater agrees); *Volvo Penta of the Ams. v. Brunswick Corp.*, 81 F.4th 1202, 1209 (Fed. Cir. 2023) (broadly applicable motivation (such as increased speed) suffices, especially where expressly stated in prior art).) And Teater agrees that implementing Norkus’s helical journals into Darlington’s crossbow would potentially produce “fundamental benefits,” and that he would be able to make such an implementation. (Ex. 1034, 158:17-159:11.)

Contrary to Ravin’s assertions, improved accuracy is not Darlington’s sole goal. As Ravin admits, another improvement is increased power. (Ex. 1013, abstract, [0015], [0042]; Ex. 1037 ¶¶ 95, 101.) Darlington discloses several embodiments where both power cables are on one side of the bowstring, resulting in some twisting forces and decrease in accuracy from a balanced configuration – something that Darlington clearly deems tolerable. (Ex. 1013, [0060]-[0061], Fig.

14; Ex. 1037 ¶¶ 100-102.) Nor is cam synchronization/slaving an absolutely essential feature, as several embodiments are expressly not synchronized. (Ex. 1013, [0055], Figs. 9-12; Ex. 1037 ¶¶ 103-106; Ex. 1034, 268:9-269:25 (Teater agrees, correcting his Declaration); *contra* Resp. 56-58.) Instead, Darlington discloses multiple different configurations with certain benefits and drawbacks, and expressly notes that any of them “can be modified and combined as required to provide any of the benefits discussed” therein. (Ex. 1013, [0061]; Ex. 1037 ¶105.) The crossbow market features myriad different bows (with multiple models often offered by the same manufacturer), each with different characteristics and tradeoffs, targeting consumers that have their individual preferences and priorities. (Ex. 1037 ¶106; Ex. 1034, 271:20-272:8 (Teater agrees).) A POSA would readily understand this and be motivated to make the combinations in these Grounds to prioritize increased power, even if at marginal cost to some other characteristics. (Ex. 1037 ¶106; *see Fleming v. Cirrus Design Corp.*, 28 F.4th 1214, 1224 (Fed. Cir. 2022) (combination need not be the preferred or most desirable configuration).) And, as noted by Darlington, a POSA would easily be able to make the necessary adjustments to implement these combinations. (*See* Ex. 1013, [0061]-[0062] (disclosed configurations “can be modified and combined as required”); Ex. 1037 ¶¶ 105-107.)

H. Grounds 9-11

For Grounds 9-11, Ravin concedes that Kempf ‘871 discloses two string guides 28, 36, and that one of them (the pulley 28) does disclose a “first draw string journal” and a “first” “power cable take-up journal.” (*See* Resp. 61-66.) But Ravin argues that the cam 36 of Kempf ‘871 does not have a draw string journal or a power cable take-up journal. (*See id.*) This is an utterly frivolous argument that is worthy of sanctions. *See* 37 C.F.R. §§ 42.11(a), 42.12(a)(2)-(3).

What a reference teaches is evaluated from a POSA’s perspective. *See Sundance, Inc. v. Demonte Fabricating Ltd.*, 550 F.3d 1356, 1364 (Fed. Cir. 2008); *Finisar Corp. v. DirecTV Grp.*, 523 F.3d 1323, 1336 (Fed. Cir. 2008). The question is not whether a party can feign ignorance about what a reference teaches, but rather what a POSA would understand it to teach. Ravin’s argument here hangs on the lack of an express callout number and arrow to the cam’s outer track (receiving the bowstring 48) and the inner track (receiving the cable 44). But just because these callout numbers are missing from the figures (in contrast to those shown for the pulley) does not mean that the underlying structural features are absent. *See Hospira, Inc. v. Fresenius Kabi USA, LLC*, 946 F.3d 1322, 1329 (Fed. Cir. 2020) (inherency may supply a missing claim limitation that is not expressly disclosed).

Each string guide in Kempf ‘871 has a draw string journal that receives the wound string 48 that delineates the plane of rotation. (Pet. 54.) Each string guide

also has a power cable journal; these journals receive the cables 44 that wrap onto the journals as the bow is drawn. (*Id.*) The Petition cited to callouts 30, 32 on the pulley 28 to pinpoint the journals because such callouts exist in Kempf '871's figures. Because the figures do not include similar callouts for the cam 36, TenPoint was unable to cite to a callout number. But a POSA would readily confirm that such journals are certainly there. (Pet. 54 (citing Ex. 1016 ¶¶ 220-24); Ex. 1037 ¶¶ 110-131.) A POSA would understand that the journals are necessarily required in order to receive the bowstring 48 and cable 44, both when static (e.g., in the fully cocked position or fully released position) and when moving (e.g., when being cocked or being fired). (See Pet. 54 (citing Ex. 1014, 4:13-23 (noting the coupling of the bowstring and one or more cables to the pulley and the cam)); Ex. 1037 ¶¶ 114-115, 117-118, 121-122, 125; Ex. 1034, 223:1-224:9 (Teater admitting he has *never* seen any cam in the history of crossbows and compound bows that did not have a groove for a power cable).) The cam close-up in Fig. 3 of Kempf '871 further shows the (unlabeled) outer track or journal where the string 48 is received, as well as the dashed (unlabeled) inner track or journal for the cable 44. (Ex. 1037 ¶¶ 119, 123, 126-129.) These aspects of a cam are so well-known that Kempf '871 does not bother to discuss them in great detail but simply states that the string and cable coupling to the cam and pulley can be done "in any manner known in the art." (Ex. 1014, 4:13-15; Ex. 1037 ¶¶ 113-114, 130.) The feigned ignorance and helplessness

of Ravin’s so-called expert on these points underscores his lack of qualification to testify from a POSA’s perspective – he simply has no credible explanation how Kempf ‘871’s string and cable can be coupled and wound on the cam without the inherently-present journals. (Ex. 1037 ¶¶ 114, 117, 125.)

As for Ravin’s conclusory arguments regarding combining Kempf ‘871 with the multiple other references’ teachings of using helical journals, they merely amount to Ravin’s say-so. (*See id.* at ¶¶ 132-134.) The Petition thoroughly explained these obviousness grounds. (Pet. 55-58.)

I. Ground 12

Ravin’s main argument on Ground 12 depends on retooling Islas’s crossbow to have a reverse-*limb* configuration. But as explained in §II.B, the “reverse draw” limitation does not require reversing the limbs; simply flipping the cams (such that the bowstring rests on the downrange side) suffices. Thus, the bulk of Ravin’s arguments is inapposite. (Ex. 1037 ¶136.) This includes Ravin’s argument about the bowstring allegedly interfering with the upper power cable. (*See also id.* at ¶138.) Moreover, Ravin’s claim 1 requires only one power cable per string guide, and that cable need not be above the draw string; it only must be displaced “away from” the draw string plane of rotation. Islas also teaches that a single power cable may be used per cam. (Ex. 1015, [0006].) So if Islas’s crossbow had only the bottom power cable (that were to be displaced downwardly, away from the plane of

rotation), there would be no interference whatsoever between it and the bowstring.

(Ex. 1037 ¶¶ 140-141.)

Date: February 13, 2024

Respectfully submitted,

/Sergey Vernyuk/

Sergey Vernyuk, USPTO Reg. No. 71,283

Back-up Counsel for Petitioner

CERTIFICATE OF WORD COUNT COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that this Reply complies with the type-volume limitation of 37 C.F.R. §42.24(c)(1), which is 5,600 words. The word count application of the word processing program used to prepare this Reply (Microsoft Word) indicates that the Reply contains 5,597 words, excluding the parts of the Reply exempted by 37 C.F.R. §42.24(c)(1).

Respectfully submitted,

Date: February 13, 2024

/Sergey Vernyuk/

Sergey Vernyuk, USPTO Reg. No. 71,283

Back-up Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that, on the date indicated below, I served the foregoing

Reply, with Exs. 1031-1037, via e-mail on:

Christopher M. King (cking@foley.com)
Kadie M. Jelenchick (kjelenchick@foley.com)
Michelle A. Moran (mmoran@foley.com)

Date: February 13, 2024

/Sergey Vernyuk/

Sergey Vernyuk, USPTO Reg. No. 71,283

Back-up Counsel for Petitioner