

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 INITIAL CLAIM CONSTRUCTION BRIEF

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The Board authorized the parties to provide additional briefing regarding the meaning of a “string guide” “*mounted to*” a respective “bow limb” in the context of claim 1 of U.S. Patent 9,354,015 (the “’015 Patent,” Ex. 1001). (Paper 45.) The Board proposed a construction that accounts for the operative features of the claim¹ and invited the parties to address the sufficiency of the construction. (*Id.* at 3.) The Board also allowed the parties to address the claim construction opinion recently issued by the District Court in the parallel litigation between the parties. (*Id.* at 4; *see* Ex. 2035 (“Opinion”).) Petitioner Hunter’s Manufacturing Company, Inc. d/b/a TenPoint Crossbow Technologies (“TenPoint”) addresses these issues herein.

I. BACKGROUND

Before this IPR was instituted, Patent Owner Ravin Crossbows, LLC (“Ravin”) sued TenPoint for infringement of the ‘015 Patent, among others. (Ex. 2007, 21.) During the claim construction process in that parallel suit, TenPoint proposed construing lengthier claim limitations that would take into account the relevant context, but Ravin insisted on construing short, general phrases that appear in different contexts within the asserted claims of different patents. (*Compare, e.g.,*

¹ Namely: “Each string guide is connected, directly or indirectly, to a respective bow limb, such that the application of force to the string guide, by the drawstring, imparts force to the bow limb.” (Paper 45, 3.)

Ex. 1004, 4 *with* Ex. 1005, 5-9.) As relevant here, Ravin proposed construing just the two-word phrase “mounted to” though it appears in the context of string guides “mounted to” limbs (using varying wording, e.g., claim 1 of the ‘015 Patent; claim 1 of U.S. Patent 10,712,118 (“’118 Patent”)) as well as an optical scope “mounted to” a scope mount (e.g., claim 31 of U.S. Patent 10,254,073 (“’073 Patent,” Ex. 1028)). (Ex. 1005, 5-9.) Because of Ravin’s position in the parallel suit, TenPoint’s Petition briefed the construction of “mounted to.” (“Pet.,” Paper 1, 25-28.) The Board’s order invites the parties to brief this claim construction issue with more precision, taking into account the context within the claim. (Paper 45, 3.)

II. “STRING GUIDE MOUNTED TO THE [RESPECTIVE] BOW LIMB”

A. Applicable Law

Claim construction begins with the words of the claims themselves. *Endo Pharms., Inc. v. Actavis LLC*, 922 F.3d 1365, 1370 (Fed. Cir. 2019). The claim terms are not considered in isolation but in light of the specification and prosecution history (i.e., the intrinsic evidence). *E.I. du Pont de Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1068 (Fed. Cir. 2019); *Univ. of Mass. v. L’Oreal S.A.*, 36 F.4th 1374, 1379 (Fed. Cir. 2022). The specification is always highly relevant to the analysis and usually is the single best guide to the meaning of a disputed term. *Cont’l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 796 (Fed. Cir. 2019). There is a fine line between reading a claim in light of the specification (which is proper) and reading a

limitation from the specification into the claim (which is improper). *Howmedica Osteonics Corp. v. Zimmer, Inc.*, 822 F.3d 1312, 1321-22 (Fed. Cir. 2016).

The prosecution history is the entire record of the proceedings in the USPTO from the first application papers to the issued patent, and includes the prior art cited during the examination of the patent. *DuPont*, 921 F.3d at 1068. Also included within the intrinsic evidence are related patent applications in the same patent family and their prosecution histories, especially if the applications involve common subject matter. *Id.* at 1069-70; *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). Unless otherwise compelled, the same claim 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). There is a heavy presumption that a claim term carries its ordinary and customary meaning, as understood by a person of ordinary skill in the art (“POSA”) in light of the intrinsic evidence. *Starhome GmbH v. AT&T Mobility LLC*, 743 F.3d 849, 856-57 (Fed. Cir. 2014).

B. Discussion

Starting with claim 1 itself, it recites “a first string guide mounted to the first bow limb” and “a second string guide mounted to the second bow limb,” where the limbs are “flexible.” Each string guide is “rotatable around a [respective] axis” and comprises a “draw string journal” and a “helical power cable take-up journal.” The

string guides' draw string journals receive a "draw string," which "translates from the down-range side [of the string guides when in a released configuration] toward the up-range side" of the string guides as the string "unwinds between the first and second string, [*sic*] guides to a drawn configuration." In other words, as the draw string is being cocked/drawn, it unwinds off the string guides' draw string journals.

The string guides' power cable journals each receive a respective "power cable." Those cables "wrap onto the [respective] helical, power cable take-up journals" as the crossbow "is drawn from the released configuration to the drawn configuration." To summarize, when the bow is being cocked/drawn, the draw string *unwinds off* the string guides, while the power cables *wind/wrap onto* the string guides.

The specification explains that bows operate by bending the limbs in order to store the energy needed to fire an arrow. (Ex. 1001, 1:49-51.) Modern bows include string guides (e.g., cams or pulleys) that have grooves/channels/journals that receive the draw string and power cables to further "load the bow limbs." (*Id.* at 1:12-16, 25-27, 33-40, 2:3-6, 11-12, 18-19, 32-35, 37-39, 3:48-53, 4:6-17, 5:27-29, 36-46, 60-67, 6:6-17, 30-47, Figs. 10-12.) As the draw string is drawn/cocked, it causes the string guides to rotate and unwinds off the string guides, while the rotation simultaneously winds up the power cables on the string guides, thus bending the limbs. (*Id.* at 1:15-16, 25-27, 41-51, 2:15-23, 39-43, 52-61, 3:60-4:5, 4:18-24, 5:32-

51, 6:18-23, 52-56, Figs. 1-6, 10.) The specification thus confirms a POSA's understanding that the string guides are used, in conjunction with the power cables, to load the limbs by the drawing of the draw string, which supports the Board's proposed construction. (*See also* Ex. 1016 ¶¶ 36-39.)

To do this, the string guides must necessarily be coupled to the limbs, whether directly or indirectly. As stated above, claim 1 recites that the string guides are “mounted to” the limbs. The Petition and Reply already explained how this mounting includes direct and indirect connections. (*See* Pet. 26; “Reply,” Paper 31, 4-7.) For example, in one embodiment of the ‘015 Patent, the string guides 158A, 158B are rotatably mounted on respective limbs 154A, 154B via respective axles 160A, 160B. (Ex. 1001, 5:23-26, Fig. 10; *see also id.* at 5:64-65, 6:5-6, 34-36, Figs. 11-12; Ex. 1016 ¶134.) Other patents in the ‘015 Patent's family (which are also part of the intrinsic evidence) have claims reciting the same “mounted to” language and disclose axles passing through cams and secured to “axle mounts” that are then secured to respective limbs. (*See, e.g.*, Ex. 1027, 9:63-10:13, Figs. 21A, 23A, claims 1, 9; Reply 5-6; *see also* Ex. 1016 ¶135.) Thus, the connection, or mounting, of the string guides to the limbs can be direct or indirect, as long as the connection allows the application of force to the string guides, by the draw string, to impart force to the limbs.

Looking at the prior art references cited during prosecution of the '015 Patent (*see* Ex. 1001, 1-2), they likewise support the Board's proposed construction. For example, U.S. Patent 7,708,001 ("Kempf '001"), which was applied against the "mounted to" claim term by the Examiner (Ex. 1002, 105-06), discloses that adding cams to bows increases the mechanical advantage associated with the draw of the bowstring. (Ex. 1008, 1:10-15.) A string guide (pulley or cam) is coupled to each bow limb (via an axle secured to a mounting bracket, which is secured to the limb). (*Id.* at Abstract, 2:9-37, Figs. 1, 3.) Each string guide has an inner track and an outer track for receiving one or more cables and the bowstring. (*Id.* at 2:14-32, Figs. 1-3.) When the bowstring is drawn, it causes the string guides to rotate and bends the limbs to which the string guides are mounted. (*Id.* at Figs. 1, 3, 2:34-37.)

Cited U.S. Patent App. Pub. 2011/0030666 ("Darlington") discloses that bows operate by having resilient limbs, the bending of which stores and then releases energy to propel an arrow. (Ex. 1013, [0002]-[0003].) The limbs are flexed by drawing the bowstring, which also propels the arrow. (*Id.*) The bowstring is coupled to the limbs by cams. The bowstring and power cables are received in grooves on the cams, and the cams are connected to the limbs (e.g., via axel assemblies). (*Id.* at [0002]-[0003], claim 23, Figs. 9-12.) Drawing the bowstring causes the cams to rotate, thus unwinding the bowstring off them and winding up the power cables on them. (*Id.* at claim 23.)

Cited U.S. Patent 7,836,871 (“Kempf ‘871,” which the ‘015 Patent also incorporates by reference, Ex. 1001, 1:26-27, 7:15-19) likewise discloses that the bowstring, string guides, and limbs function together for the bow to deliver energy to an arrow. (Ex. 1014, Abstract, 1:36-56.) Cited U.S. Patent App. Pub. 2011/0308508 (“Islas”) is to the same effect and shows that the string guides are connected to the limbs such that drawing the bowstring would impart force to the limbs. (See Ex. 1015, [0006], [0011], [0013], claims 1-2, Fig. 1-3.) The intrinsic evidence thus amply supports the Board’s proposed construction of “string guide mounted to the [respective] bow limb” as “each string guide is connected, directly or indirectly, to a respective bow limb, such that the application of force to the string guide, by the draw string, imparts force to the bow limb.” (Paper 45, 3.)

III. DISTRICT COURT CLAIM CONSTRUCTION OPINION

The District Court’s Opinion issued after TenPoint’s Reply was due, so TenPoint was not able to comment on the Opinion previously. The Opinion addressed the parties’ disputes on various claim terms across the asserted patents. (See Ex. 2035, 1, 5.) One of the construed terms was “mounted to.” (*Id.* at 6-10.)

The Court ruled that “Ravin’s proposed construction must fail.” (*Id.* at 7.) The Court also opined that TenPoint’s proposed construction (“connected to, either directly or indirectly”) of this two-word phrase would not be helpful to a jury because of the lack of a limiting principle for an indirect connection. (*Id.* at 7-8.)

Ultimately the Court decided that “mounted to” did not need construction and that the jury could just apply its plain and ordinary meaning. (*Id.* at 8-10.)

It is important to note that the Court did not say that TenPoint’s proposed construction (of “mounted to” including direct *and* indirect connections) was wrong. Neither did the Court construe this two-word term as *requiring* rotation and *prohibiting* any other movement with respect to the limbs, as Ravin argued. (*See also* Pet. 26-28; Reply 3-8; Paper 25, 4.) As explained in §I above, the Court was analyzing a two-word phrase because Ravin insisted on construing that short snippet (which appears in different patents, claims, and contexts), rather than a lengthier claim limitation that includes the relevant context. It is more difficult to provide a “helpful” construction of a general term, which is why TenPoint focused on the specific disputes between the parties regarding this term (namely, (a) whether indirect connections are included, (b) whether rotation is required, and (c) whether all other movements are prohibited), rather than ascertaining an all-encompassing meaning of a general, two-word phrase that is supposed to work across all relevant contexts.

If the specific context of “mounted to” within claim 1 of the ‘015 Patent is taken into account (namely, “string guide mounted to the [respective] bow limb”), a more “helpful” construction can be provided. This longer phrase still does not itself require rotation – that is affirmatively recited by *subsequent* claim language (“and

rotatable around a [respective] axis”). Neither does this longer phrase prohibit all other movement. (*See* Reply 8.) And as explained above, the intrinsic evidence confirms that this longer phrase includes indirect connections.

It is an indirect connection that the Court was concerned with, namely, its extent. In claim 1’s context of a string guide being “mounted to” a bow limb, the connection is a functional/operational one, where the string guides, the bowstring and power cables (which are received in the string guides), and the limbs work together, such that applying force to the draw string (to draw it) imparts force to the bow limbs (and bends them), as explained above. (*See also* Ex. 1034, 106:15-107:4 (Ravin’s expert witness Teater opining that a “functional relationship is meaningful to the definition” of “mounted to”); *id.* at 118:20-119:15 (agreeing that indirect mounting is encompassed if required for functionality).)

IV. CONCLUSION

For the reasons discussed above, the evidence supports the Board’s proposed construction.

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Respectfully submitted,

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

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