

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOWMAR ARCHERY LLC,
Petitioner,

v.

MATTHEW FUTTERE,
Patent Owner.

IPR2024-00401
Patent 8,043,177 B2

REPLY DECLARATION OF TODD A. KUHN, PH.D.

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I, Todd A. Kuhn, Ph.D., declare as follows:

1. I have reviewed the Patent Owner's Response (and related exhibits) and the declaration of Wayne Willkomm (and related exhibits). I have also reviewed the transcript from the deposition of Mr. Willkomm taken on November 19, 2024. I submit this reply declaration in response to the statements in Mr. Willkomm's declaration and in view of his deposition testimony.

2. In my opening Declaration I provided my opinions that certain claims of the '177 patent are invalid in view of the prior art. I applied the standard of a POSITA set forth in my original Declaration when forming my opinions then and now. Mr. Willkomm's declaration and deposition testimony taken on November 19, 2024, has only confirmed my conclusions that claims 1-4, 7, 9, 11, 12, 15, and 17 of the '177 are invalid, as discussed below.

I. LIECHTY, II DISCLOSES EVERY LIMITATION OF CLAIMS 1-4, 9, 11, 12, AND 17 (GROUND V)

3. I understand that a legal principle in patent law is that a prior art reference that sometimes, but not at all times, discloses all the claims limitations of a patent claim nonetheless anticipates the claim. I applied this legal principle when analyzing Liechty, II in relation to the claims of the '177 patent in my original Declaration and in my further analysis below in response to Mr. Willkomm's declaration and testimony.

4. My opening Declaration details how Liechty, II discloses all the limitations of claims 1-4, 9, 11, 12, and 17 when the blades of the Liechty, II broadhead move in a forward direction from the position shown in Figure 5 of Liechty, II.

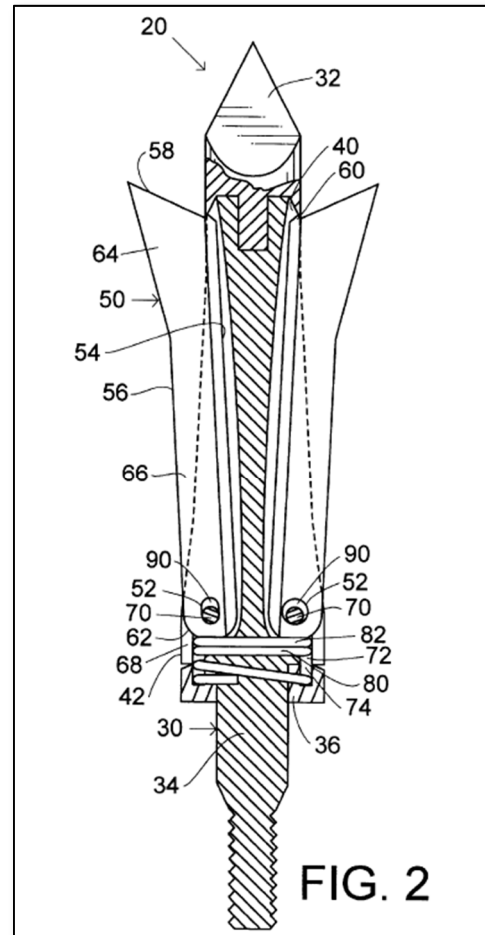
5. As discussed below, **during his deposition on November 19, 2024, Patent Owner's expert, Mr. Willkomm, admitted that the Liechty, II broadhead discloses all of the claim limitations of independent claims 1 and 11** when the blades of the Liechty, II broadhead move in a forward direction from the position shown in Figure 5 of Liechty, II. Neither the Patent Owner nor Mr. Willkomm dispute my opinions in my opening Declaration that the Liechty, II broadhead discloses all of the other limitations of claims 2-4, 9, 12, and 17. Thus, in my opinion, Liechty, II anticipates claims 1-4, 9, 11, 12, and 17.

A. Brief summary of how the Liechty, II broadhead operates

6. In response to Mr. Willkomm's statements in his Declaration (Ex. 2008), I clarify my previous opinions about how the Liechty, II broadhead operates during use.

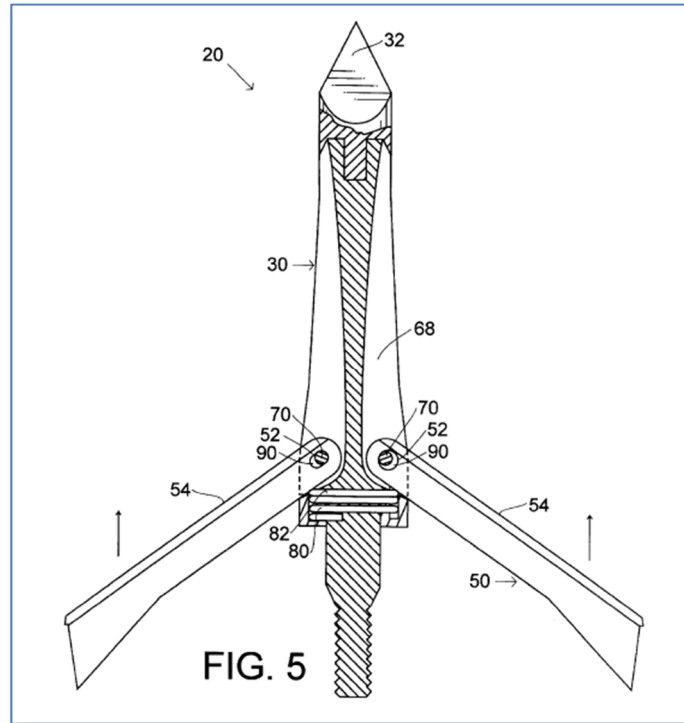
7. First, when the Liechty, II broadhead is shot from a bow or crossbow, the blades of the broadhead start out in the "fully closed position." The "fully closed position" is shown in Figure 2 of Liechty, II (reproduced at right).

8. Second, when the Liechty broadhead hits an animal, the force from contacting the animal drives the blades rearward against the spring tension, and the blades rotationally move rearward toward the "fully open position" about the pivot point. Mr.

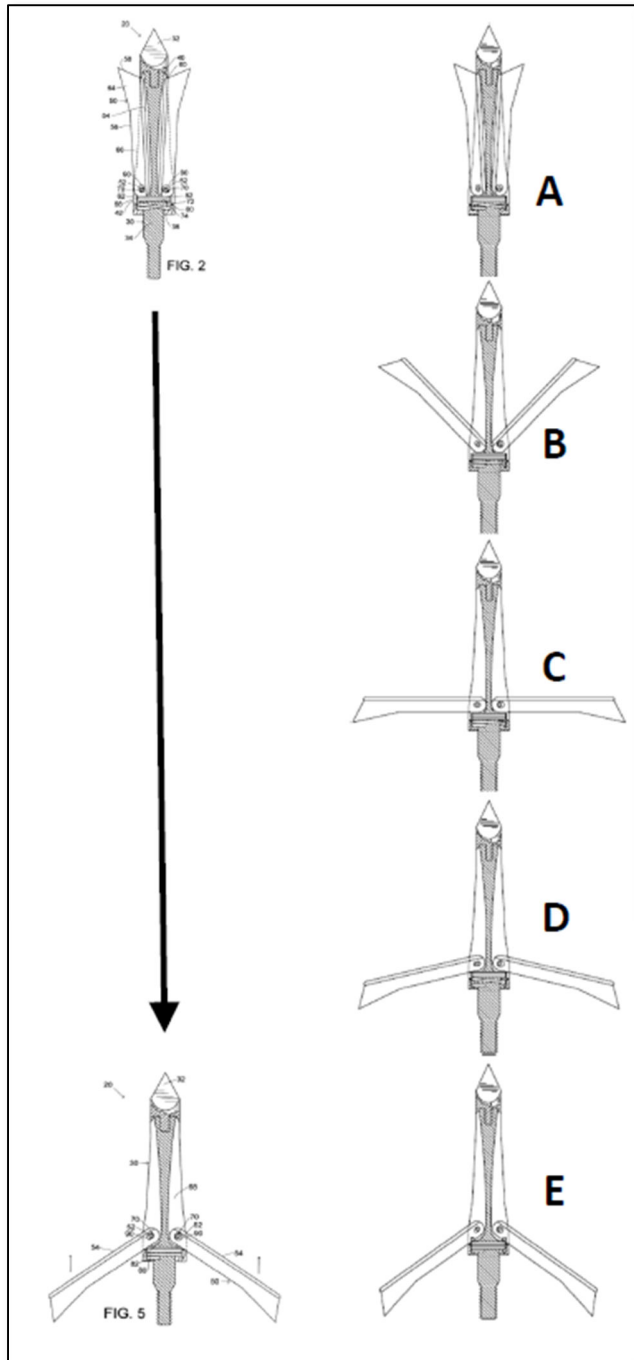


Willkomm agrees. Ex. 2008, ¶ 114 ("When the wings 64 of the blades 50 contact an animal, the blades 50 are compressed rearward against the spring 80. Ex. 1012 at 12:2-11. The wings 64, having a forward angle, rotationally drive each blade 50 rearward toward the open or extended position along the hinge pin 70."). The "fully

open position” is shown in Figure 5 of Liechty, II. Ex. 1034, 20:5-8 (Fig. 5 shown below).



9. Exhibit 1022 accurately depicts what the Liechty, II broadhead looks like as the blades move from the “fully closed position” to the “fully open position.” Mr. Willkomm agrees. Ex. 1034, 26:23-25; 28:6-11. The figures in Exhibit 1022 are juxtaposed with Mr. Willkomm’s testimony below.



Referring to Ex. 1022, Mr. Willkomm testified:

“Q. In your opinion do these figures accurately depict what the broadhead in Liechty looks like as the blades progress from a fully closed position, which is shown in Figure A, to a fully open position, which is shown in Figure E?

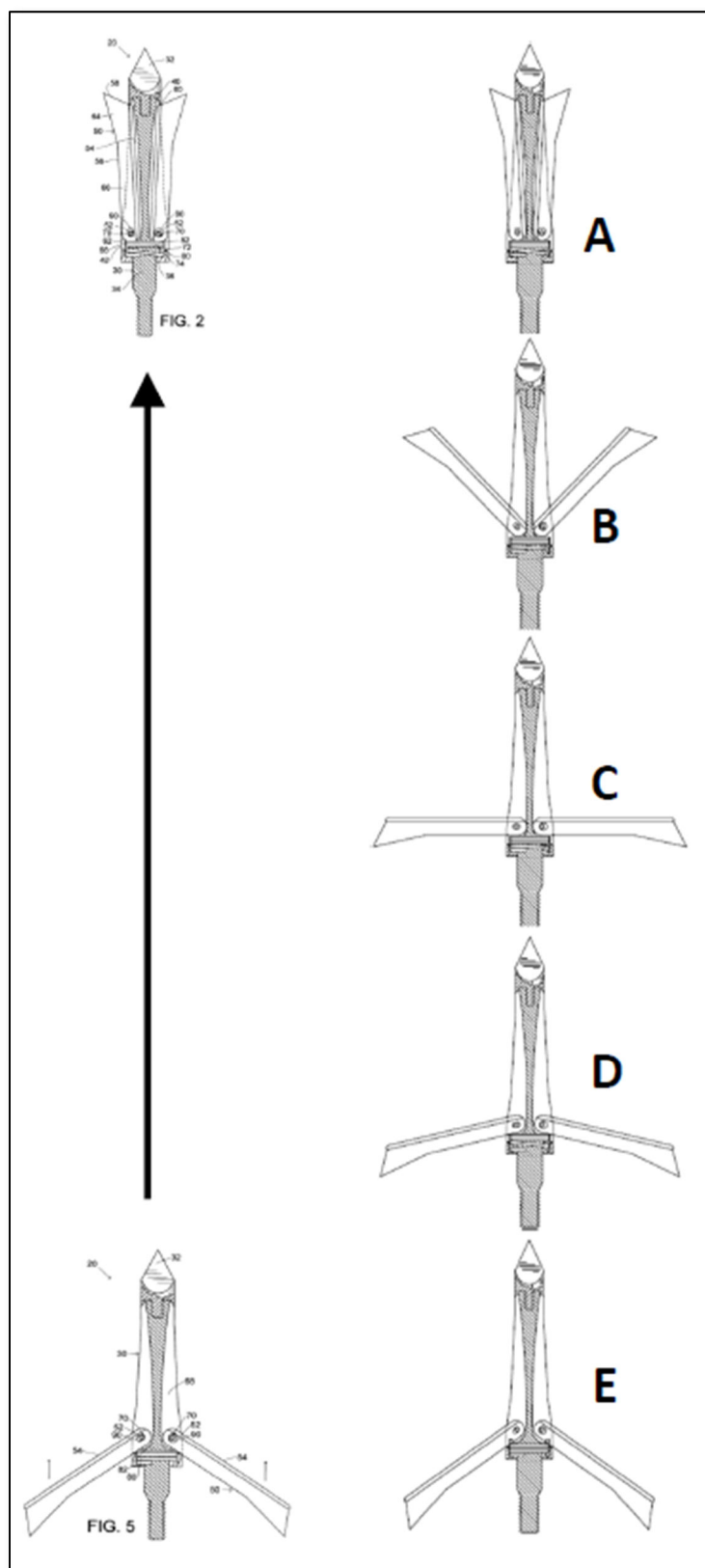
A. Yes.”

Ex. 1034, 28:6-11.

Exhibit 1022

10. Third, after the blades reach the “fully open position” (shown in Figure 5 of Liechty, II), the blades will extend forward under force from an annular spring while moving from the “fully open position” (shown in Figure 5 of Liechty, II) back to the “fully closed position” (shown in Figure 2 of Liechty, II). When doing so, the blades move from a “retracted position” to an “extended position.”

11. Exhibit 1023 accurately depicts what the blades of the Liechty, II broadhead look like as they move from the “fully open position” back to a “fully closed position.” Mr. Willkomm agrees. Ex. 1034, 33:22-34:22 and 35:7-13. The figures in Exhibit 1023 are juxtaposed with Mr. Willkomm’s testimony on the following page.



Referring to Ex. 1023, Mr. Willkomm testified:

“Q. Okay . . do the figures otherwise depict what the broadhead looks like as the blades move or progress from the fully open position back to the fully closed position?”

A. Yes.”

Ex. 1034, 34:17-22.

“Q. And the spring causes the blades to move forward in that circumstance; correct?”

A. The springs are acting upon the blades, yes. In that direction.”

Ex. 1034, 30:22-25.

Exhibit 1023

12. To further aid the Patent Trial and Appeal Board in understanding how the Liechty, II broadhead functions during use, I had an animation created, which is attached as Exhibit 1035. In my opinion, the animation accurately depicts how the blades of Liechty, II broadhead move during use of the broadhead.

13. As I explained in my opening Declaration, the Liechty, II broadhead meets all the limitations of claim 1 as the blades move from the “fully open position” back to a “fully closed position” as a result of the force of the annular spring. **Mr. Willkomm admitted during his deposition that all the limitations of claims 1 and 11 are met as the blades move from the “fully open position” back to a “fully closed position.”** Mr. Willkomm’s admissions are significant because, again, it is my understanding that a prior art that sometimes, but not at all times, discloses all the limitations in a patent claim nonetheless anticipates that claim.

14. In the paragraphs below, I reiterate my analysis in my opening Declaration and identify Mr. Willkomm’s testimony during his deposition admitting that the Liechty, II broadhead contains all the limitations of claims 1 and 11.

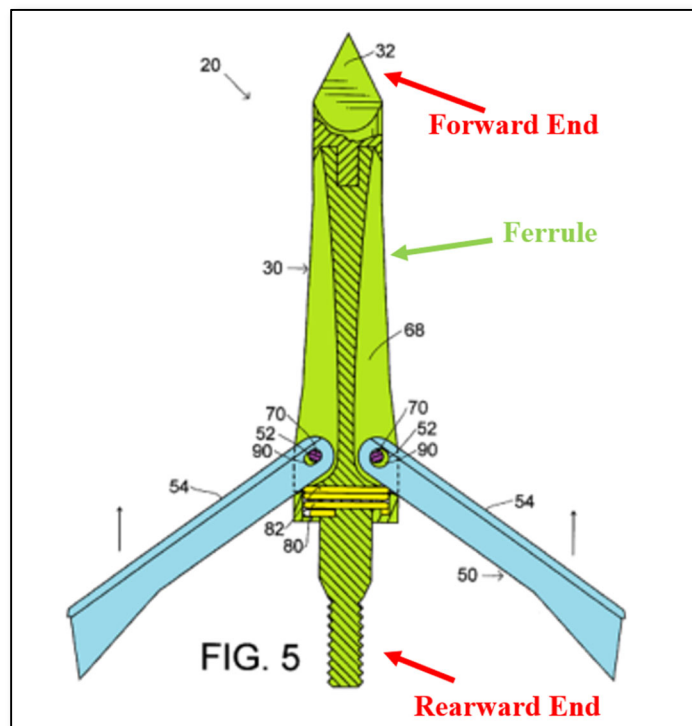
B. Liechty, II discloses all the limitations of claim 1

15. My opening Declaration explains how Liechty, II discloses all the limitations of claim 1. Mr. Willkomm did not dispute in his Declaration that Liechty, II discloses the claim’s basic elements, such as a ferrule, a first blade member, a second blade member, and a biasing member. As detailed below, he admitted in his

deposition that Liechty, II discloses all of these elements, as well as all other limitations of claim 1.

“A broadhead for an arrow having a shaft, the broadhead comprising: “a ferrule having a rearward end configured for attachment to the shaft and an opposite forward end with a ferrule body extending therebetween;”

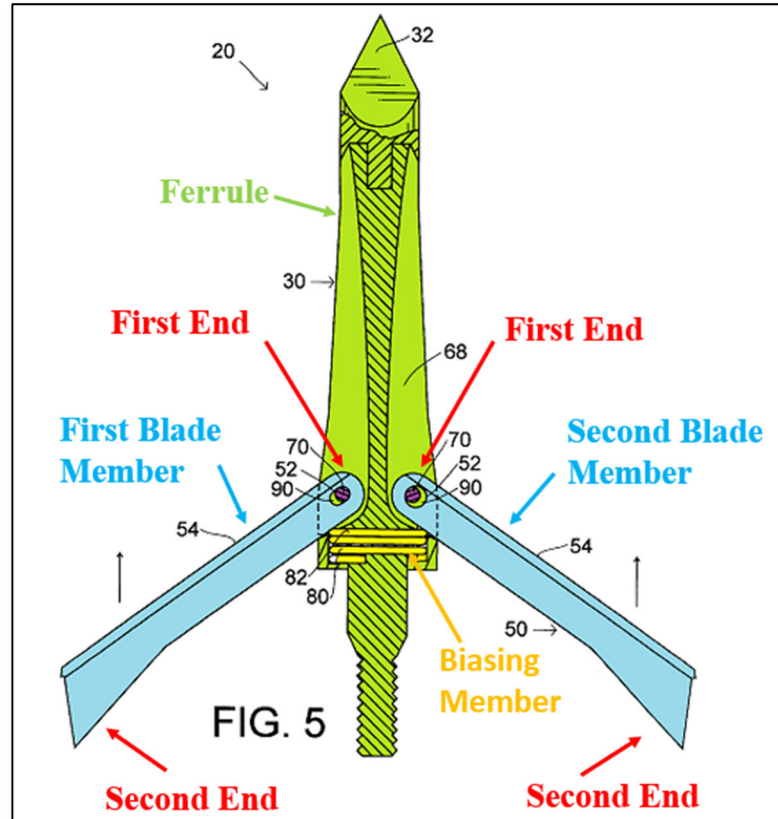
16. Liechty, II discloses a “broadhead” with a “ferrule body.” Ex. 1034, 20:18-21. The ferrule has a “rearward end” and a “forward end.” Ex. 1034, 21:8-18. The “rearward end of the ferrule attaches to an arrow shaft.” Ex. 1034, 21:8-10. The “forward end of the ferrule is at the tip of the ferrule.” Ex. 1034, 21:16-18. Annotated Figure 5 below shows this.



“a first blade member having a first end pivotally interconnected with the ferrule body and an opposite second end,”

17. Liechty. II discloses “two blade members” and “each of the blade members of the Liechty broadhead has two ends.” Ex. 1034, 22:16-21.

18. “[T]he first end of each blade is pivotally connected to the ferrule body.” Ex. 1034, 22:19-23:5. The first end “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. “[T]he blades have a second end” that is “able to freely rotate which is not connected to the ferrule body” and “is spaced a distance away from the ferrule body.” Ex. 1034, 23:6-13. Annotated Figure 5 below shows this.



“the first blade member having a retracted position wherein the second end is spaced from the ferrule body at a first distance and an extended position wherein the second end is spaced from the ferrule body by a distance which is greater than the first distance;”

19. Liechty, II discloses the blades in a “retracted position” and an “extended position.” “Claim 1 defines ‘retracted position’ as ‘a first distance between the ferrule body and the second end of the blade member.’ Ex. 1034, 75:8-11; Ex. 1001, 5:27-29. “Claim 1 defines ‘extended position’ as the second end being spaced from the ferrule body by a distance which is greater than the first distance.” Ex. 1034, 75:18-21; Ex. 1001, 5:29-31. The specification of the ‘177 patent uses the exact same language to define the “retracted position” and “extended position.” Ex. 1034, 75:23-76:1; Ex. 1001, 1:40-45.

20. Notably, nothing in the claim prohibits when (1) the blades must be in the “retracted position” or “extended position;” or (2) when the blades must move from an “retracted position” to an “extended position.” Mr. Willkomm agrees. Ex. 1034, 81:2-17 (reproduced below).

Q. Sure. There's nothing in the claim language in claim 1 that dictates when the blade members must move from a retracted position to an extended position.

A. There's no timing element noted. Just that it has to be when the positions are in certain ways.

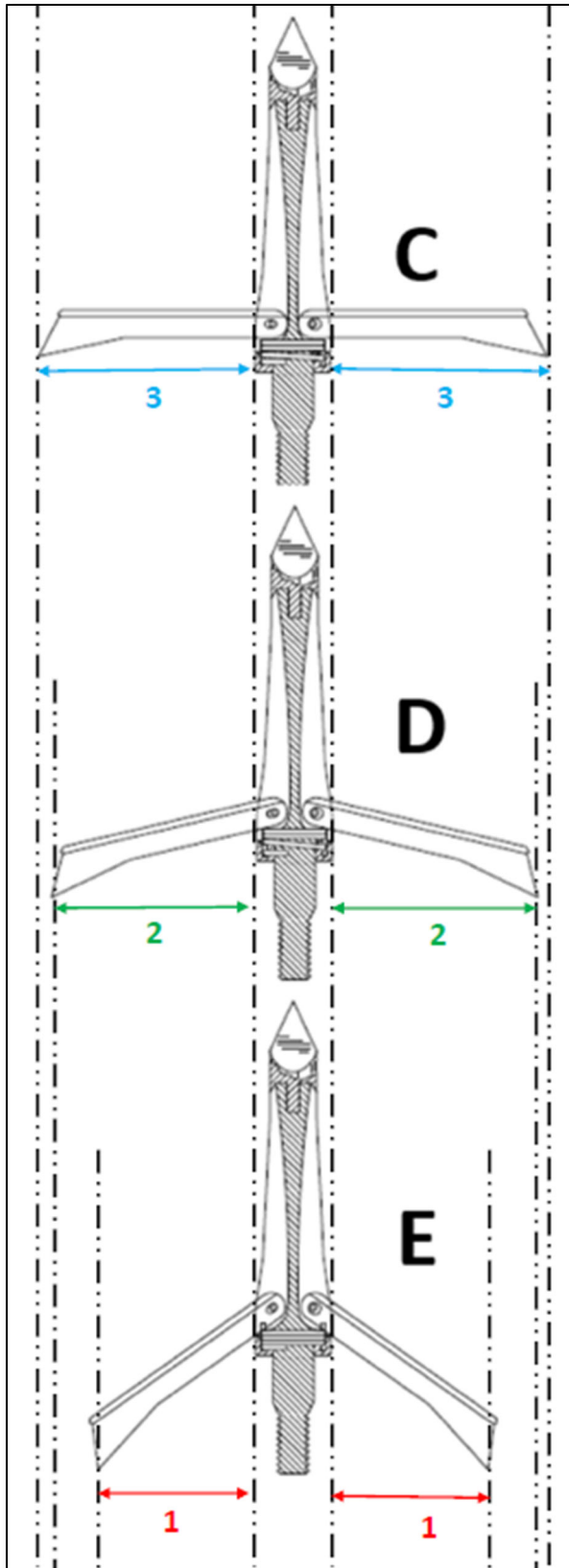
Q. And likewise, there's no timing element in claim 1 that dictates when the blades must move from an extended position to a retracted position.

A. You're asking of a timing element, sir?

Q. Well, your answer said there is no timing element in claim 1.

A. Yes, that is correct. There is no timing element that I observed. Only definition of the position -- different positions.

21. Exhibit 1024 depicts the distances between the ends of the blades and the ferrule body as the blades move forward from a “retracted position” to an “extended position” as a result of the force of the annular spring. The figures in Exhibit 1024 are juxtaposed with Mr. Willkomm’s testimony on the following page.



Referring to Ex. 1024, Mr. Willkomm testified:

“Q. Okay. Now look at Figure D. Figure D, there's a distance between the end of the blades and the ferrule body in Figure D. We have a green double arrow showing that distance. We labeled that with a number 2, a **second distance**. Do you see that?

A. Yes.

Q. Okay. So my question is, the **second distance**, which is in green in Figure D, is greater than the **first distance**, which is red in Figure E; correct?

A. That is correct.

* * *

Q. So now look at Figure C. In Figure C there's a distance between the end of the blades and the ferrule body. We have a blue double arrow showing that distance. We've labeled that with a number 3, a **third distance**. Do you see that?

A. Yes.

Q. And a **third distance**, which is in blue in Figure C, is greater than the **second distance**, which is in green in Figure D; correct?

A. Appears to be slightly greater, yes.

Q. So when comparing Figure C and D, the **third distance**, which is in blue, is greater than the **second distance**, which is in green; correct?

A. Yes.

Q. So the **third distance** is greater than the **second distance**.

A. Yes.

Q. So the distance in Figure C is greater than the distance in Figure E.

A. Appears to be slightly so.”

Ex. 1034, 39:13-41:7.

22. During normal use of the Liechty, II broadhead, the blades will move forward as depicted in Exhibit 1024 when the broadhead: (1) is moving through an animal; (2) the broadhead stops in an animal; or (3) exits an animal. Mr. Willkomm agrees. Ex. 1034, 36:1-38:14. For example, Mr. Willkomm testified:

Q. And then, after the broadhead is in the fully open position, when do the blades start moving back forward, in your experience?

A. **When the resistance of the medium through which it's traveling is less than the spring force, then the blades will then move forward toward the closed position.**

Q. Could that occur while the broadhead is moving in an animal?

A. Yes.

Q. Could that occur when the broadhead exits an animal if you're hunting deer?

A. Yes.

Ex. 1034, 36:1-13.

In your experience as an expert, will the blades of the Liechty broadhead move forward as depicted in the figures of Exhibit 1023 after the broadhead comes to a stop in the animal?

A. No, not against, for example, ribs either going in or going out.

Q. What if it stops in the stomach of the deer?

A. In the stomach, it depends upon which part of the abdominal section you're referring to. Any one of the four stomachs and also the large and small intestines all have different coefficients of resistance. So answering your question is a yes and no. **There are situations where it will. For example, if it does not have in the abdominal section hitting where there is not a resisting force that's enough to keep the spring fully compressed, it will decompress and push those blades somewhat forward. In the abdominal cavity, only at the very top where there is a gap and air on the inside of the abdominal cavity would -- and it would stop right at that point, that would allow some movement forward.**

Q. How much movement forward?

A. Of the blades.

Q. How much movement forward?

A. It depends on where it stops in the animal. If it stops where let's say the tip, for example, is touching the far side, then the blades would only go so far forward until they touch the inside of the rib cage. **If it hit on the inside of the intestines, depending on the resistance of the walls of the large or small intestines, or the stomachs themselves can offer enough resistance so they would not allow the blades to go fully forward.**

Q. But the blades will move somewhat forward; correct?

A. Yes.

Ex. 1034, 36:18-38:8.

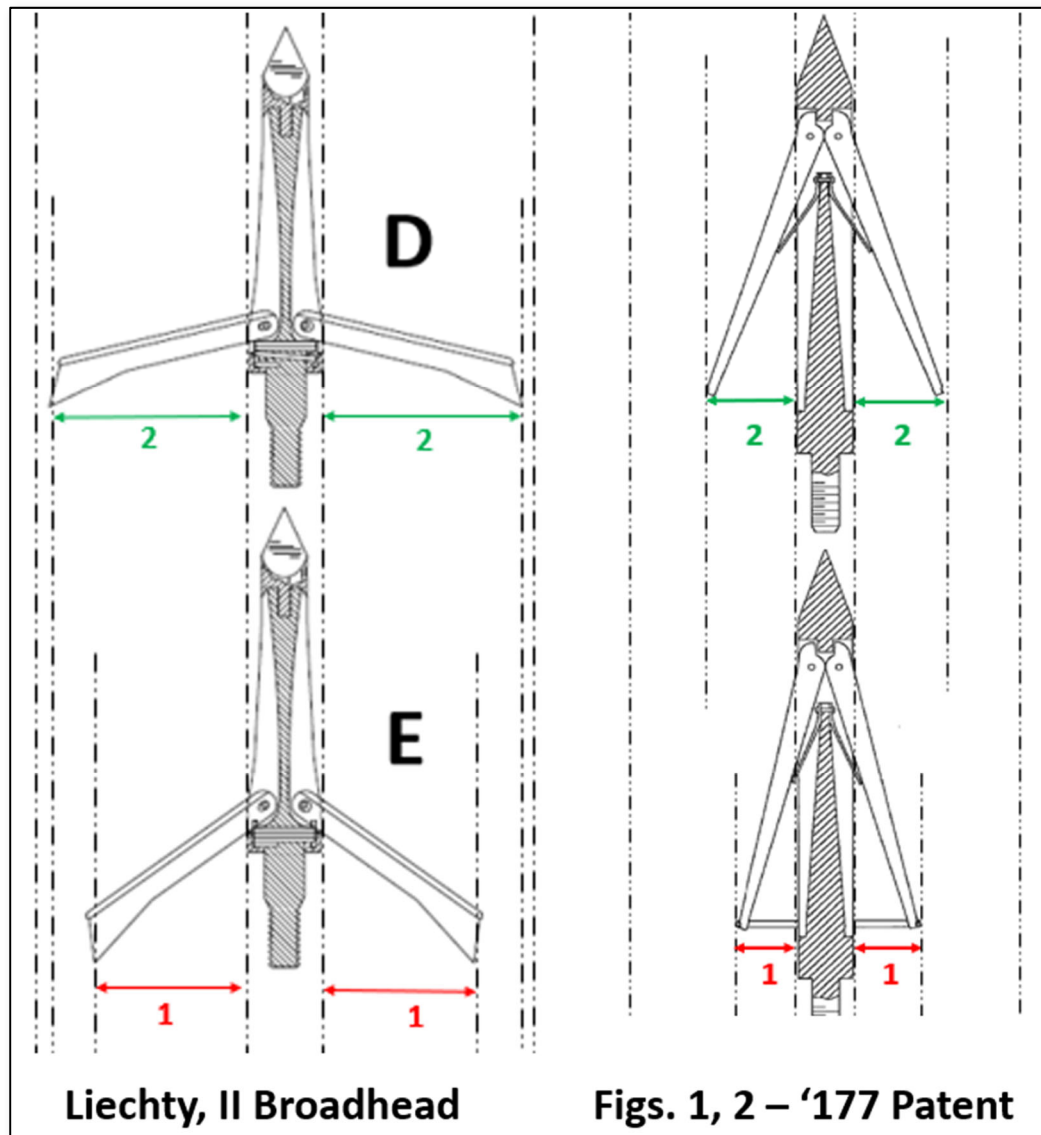
23. As can be seen in Exhibit 1024, when the Liechty, II broadhead is in the position shown in Figure E, there is a “first distance” which is “a distance between the end of the blades and the ferrule body.” Ex. 1034, 38:23-39:5; 39:13-18. As the blades of the Liechty, II broadhead move forward, they will arrive at “second distance” “between the end of the blades and the ferrule body in Figure D.” Ex. 1034, 19-40:5. “The second distance is greater than the first distance.” Ex. 1034, 40:1-12.

24. Stated differently, as the blades of the Liechty, II broadhead move forward from the force of the annular spring, the distance between the second end of each blade and the ferrule body gets larger. The figures from Exhibit 1024, reproduced above, illustrate this.

25. In comparison, the blades in all of the embodiments in the ‘177 patent do the exact same thing – i.e., as the blades move forward from the force of the

annular spring, the distance between the second ends of the blades and the ferrule body gets larger. Annotated version of Figures 1 and 2 of the '177 patent, shown below, illustrate this.

“an extended position” – i.e., the second end being spaced from the ferrule body by a distance which is greater than the first distance



“a retracted position” – i.e., a first distance between the ferrule body and the second end of the blade member

“a second blade member having a first end pivotally interconnected with the ferrule body and an opposite second end,”

26. Again, Liechty. II discloses “two blade members” and “each of the blade members of the Liechty broadhead has two ends.” Ex. 1034, 22:16-21.

27. “[T]he first end of each blade is pivotally connected to the ferrule body.” Ex. 1034, 22:19-23:5. The first end “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. “[T]he blades have a second end” that is “able to freely rotate which is not connected to the ferrule body” and “is spaced a distance away from the ferrule body.” Ex. 1034, 23:6-13.

“the [second] blade member having a retracted position wherein the second end is spaced from the ferrule body at a first distance and an extended position wherein the second end is spaced from the ferrule body by a distance which is greater than the first distance; and”

28. Again, Liechty discloses the blades in a “retracted position” and an “extended position.” “Claim 1 defines ‘retracted position’ as ‘a first distance between the ferrule body and the second end of the blade member.’” Ex. 1034, 75:8-11; Ex. 1001, 5:34-36. “Claim 1 defines ‘extended position’ as the second end being spaced from the ferrule body by a distance which is greater than the first distance.” Ex. 1034, 75:18-22; Ex. 1001, 5:36-38. The specification of the ‘177 patent uses the

exact same language to define the “retracted position” and “extended position.” Ex. 1034, 75:23-76:1; Ex. 1001, 1:47-51.¹

29. Exhibit 1024 contains figures depicting the distances between the ends of the blades and the ferrule body as the blades move forward as a result of the force of the annular spring. The figures in Exhibit 1024 are reproduced above.

30. Again, during normal use of the Liechty, II broadhead, the blades will move forward as depicted in Exhibit 1024 when the broadhead (1) is moving through an animal; (2) the broadhead stops in an animal; or (3) exits an animal. Mr. Willkomm agrees. Ex. 36:1-38:14.

31. As can be seen in Exhibit 1024, when the broadhead is the position shown in Figure E, there is a “first distance” which is “a distance between the end of the blades and the ferrule body.” Ex. Ex. 1034, 38:23-39:5; 39:13-18. As the blades of the Liechty, II broadhead move forward, they will arrive at “second distance” “between the end of the blades and the ferrule body in Figure D.” Ex. 1034, 19-40:5. “The second distance is greater than the first distance.” Ex. 1034, 40:1-12.

32. Stated differently, as the blades of the Liechty, II broadhead move forward from the force of the annular spring, the distance between the second end of

¹ The specification contains a typographical error. Specially, at Column 1, line 47, “first blade member” should read “second blade member.”

each blade and the ferrule body gets larger. The figures from Exhibit 1024, reproduced above, illustrate this.

“at least one biasing member biasing the first and second blade members towards the extended positions, the biasing member being the only element operable to hold the blade members in the extended position.”

33. Liechty, II discloses “a biasing member or annular spring 80.” Ex. 1034, 24:5-8. The annotated figure above shows this.

34. Mr. Willkomm defines the phrase “the biasing member being the only element operable to hold the blade members in the extended position” as “the biasing member is the only element operable to exert a force on the blade member in the extended position.” Ex. 1034, 91:14-20. He testified that the phrase does not “mean that the biasing member must hold the blade member in a static position.” Ex. 1034, 90:14-16. He also testified that the word “element” in the phrase “element operable” refers “to a component of the broadhead.” Ex. 1034, 119:24-120:3. I agree with his interpretation of this phrase.

35. Mr. Willkomm admitted that the annular spring in the Liechty, II broadhead is the only element operable to exert a force on the blade members. “[T]he spring causes the blades to move forward” because “[t]he springs are acting upon the blades.” Ex. 1034, 30:22-25. “[D]uring use of the broadhead, the continuing

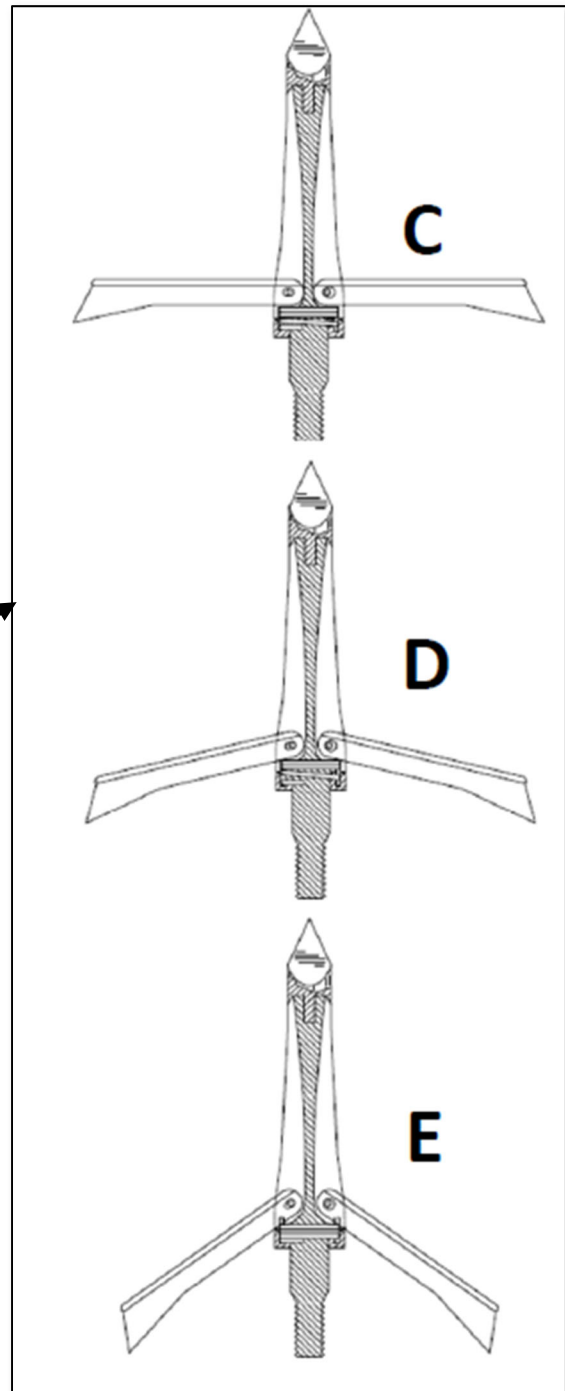
urging force produced by the annular spring drives the blades in a forward direction.”

Ex. 1034, 34:23-35:13.

36. In sum, Liechty, II discloses all of the limitations of claims 1-4, 9, 11, 12, and 17 when the blades progress forward as a result of the force applied by the annular spring.

Liechty, II satisfies all the claim limitations as the blades progress from the position shown in Fig. E to the position shown in Fig. C.

37. For ease of reference, below is a claim chart mapping the requirements of claim 1 to Mr. Willkomm’s testimony admitting that the Liechty, II broadhead discloses all the limitations of claim 1.



Claim 1 of '177 Patent	Liechty, II
A broadhead for an arrow having a shaft, the broadhead comprising:	“Q. Okay. Figure 5 shows a broadhead. A. Yes.” Ex. 1034, 20:18-19. <i>See also</i> my analysis in Ex. 1019, ¶ 190 (citing Ex. 1012, 10:26-36).
a ferrule having a rearward end configured for attachment to the shaft and an opposite forward end with a ferrule body extending therebetween;	“Q. And that broadhead has a ferrule body? A. Yes.” Ex. 1034, 20:20-21. “Q. So in Figure 5 of Liechty the rearward end of the ferrule attaches to an arrow shaft. A. That is correct.” Ex. 1034, 21:8-10. “Q. And the forward end of the ferrule is at the tip of the ferrule. A. Yes.” Ex. 1034, 21:16-18. <i>See also</i> my analysis in Ex. 1019, ¶ 191(citing Ex. 1012, 10:32, Fig. 5).
a first blade member having a first end pivotally interconnected with the ferrule body and an opposite second end,	“Q. Okay. There are two blade members shown in Figure 5 of Liechty; correct? A. Yes. Q. Okay. So -- and each of the blade members of the Liechty broadhead has two ends. A. Yes. In the two-dimensional figure.”

Claim 1 of '177 Patent	Liechty, II
	Ex. 1034, 22:16-21. “Q. Yes. And in Figure 5 the blades have a first end that are pivotally connected to the ferrule body by a hinge pin. A. The blades have an end which is connected to the ferrule by the pivot point. Q. Yup. And the pivot point, that's connected -- the pivot point is where the blades are connected to the ferrule body by a hinge pin; correct? A. Yes. Ex. 1034, 22:22-23:5. “Q. And the blades have a second end -- we'll call that the free end, right? -- that's able to rotate freely, which is not connected to the ferrule body? A. That is correct.” Ex. 1034, 23:6-10. See also my analysis in Ex. 1019, ¶ (citing Ex. 1012, 10:32 and Fig. 5).
the first blade member having a retracted position wherein the second end is spaced from the ferrule body at a first distance and an extended position wherein the second end is spaced from the ferrule body by a distance which is greater than the first distance;	“Q. Claim 1 defines retracted position as a first distance between the ferrule body and the second end of the blade member. A. Uh-huh. Yes, I think that's correct.” Ex. 1034, 75:8-11. “Q. So claim 1 defines extended position as the second end being spaced from the ferrule body by a

Claim 1 of '177 Patent	Liechty, II
	distance which is greater than the first distance; correct? A. Yes.” Ex. 1034, 75:18-22. “Q. And the specification uses the same language when describing the retracted and extended positions; correct? A. Yes.” Ex. 1034, 75:23-76:1. Referring to Ex. 1024: “Q. So there's a distance between the end of the blades and the ferrule body. We have a red double arrow showing that distance and we've labeled that with a number 1 in the first distance. Do you see that? A. Yes. Q. Okay. Now look at Figure D. Figure D, there's a distance between the end of the blades and the ferrule body in Figure D. We have a green double arrow showing that distance. We labeled that with a number 2, a second distance. Do you see that? A. Yes. Q. Okay. So my question is, the second distance, which is in green in Figure D, is greater than the first distance, which is red in Figure E; correct? A. That is correct. Q. Now let's compare Figures E and D. The second distance, which is in green, is larger than the first distance, which is in red; correct?

Claim 1 of '177 Patent	Liechty, II
	A. Yes. Q. So the second distance is greater than the first distance; correct? A. Yes. Q. So now look at Figure C. In Figure C there's a distance between the end of the blades and the ferrule body. We have a blue double arrow showing that distance. We've labeled that with a number 3, a third distance. Do you see that? A. Yes. Q. And a third distance, which is in blue in Figure C, is greater than the second distance, which is in green in Figure D; correct? A. Appears to be slightly greater, yes. Q. So when comparing Figure C and D, the third distance, which is in blue, is greater than the second distance, which is in green; correct? A. Yes. Q. So the third distance is greater than the second distance. A. Yes. Q. So the distance in Figure C is greater than the distance in Figure E. A. Appears to be slightly so.” Ex. 1034, 39:13-41:7. See also my analysis in Ex. 1019, ¶ 192 (citing Ex. 1012, 12:14-18; Fig. 5).
a second blade member having a first end pivotally interconnected with the	“Q. Okay. There are two blade members shown in Figure 5 of Liechty; correct?

Claim 1 of '177 Patent	Liechty, II
ferrule body and an opposite second end	A. Yes. Q. Okay. So -- and each of the blade members of the Liechty broadhead has two ends. A. Yes. In the two-dimensional figure.” Ex. 1034, 22:16-21. “Q. Yes. And in Figure 5 the blades have a first end that are pivotally connected to the ferrule body by a hinge pin. A. The blades have an end which is connected to the ferrule by the pivot point. Q. Yup. And the pivot point, that's connected -- the pivot point is where the blades are connected to the ferrule body by a hinge pin; correct? A. Yes. Ex. 1034, 22:22-23:5. “Q. And the blades have a second end -- we'll call that the free end, right? -- that's able to rotate freely, which is not connected to the ferrule body? A. That is correct.” Ex. 1034, 23:6-10. See also my analysis in Ex. 1019, ¶ 194 (citing Ex. 1012, 10:32 and Fig. 5).
the [second] blade member having a retracted position wherein the second end is spaced from the ferrule body at a first distance and an extended position wherein the second end is spaced from	“Q. Claim 1 defines retracted position as a first distance between the ferrule body and the second end of the blade member.

Claim 1 of '177 Patent	Liechty, II
the ferrule body by a distance which is greater than the first distance; and	A. Uh-huh. Yes, I think that's correct." Ex. 1034, 75:8-11. "Q. So claim 1 defines extended position as the second end being spaced from the ferrule body by a distance which is greater than the first distance; correct? A. Yes." Ex. 1034, 75:18-22. "Q. And the specification uses the same language when describing the retracted and extended positions; correct? A. Yes." Ex. 1034, 75:23-25. Referring to Ex. 1024: "Q. So there's a distance between the end of the blades and the ferrule body. We have a red double arrow showing that distance and we've labeled that with a number 1 in the first distance. Do you see that? A. Yes. Q. Okay. Now look at Figure D. Figure D, there's a distance between the end of the blades and the ferrule body in Figure D. We have a green double arrow showing that distance. We labeled that with a number 2, a second distance. Do you see that? A. Yes. Q. Okay. So my question is, the second distance, which is in green in Figure D, is greater than the first

Claim 1 of '177 Patent	Liechty, II
	distance, which is red in Figure E; correct? A. That is correct. Q. Now let's compare Figures E and D. The second distance, which is in green, is larger than the first distance, which is in red; correct? A. Yes. Q. So the second distance is greater than the first distance; correct? A. Yes. Q. So now look at Figure C. In Figure C there's a distance between the end of the blades and the ferrule body. We have a blue double arrow showing that distance. We've labeled that with a number 3, a third distance. Do you see that? A. Yes. Q. And a third distance, which is in blue in Figure C, is greater than the second distance, which is in green in Figure D; correct? A. Appears to be slightly greater, yes. Q. So when comparing Figure C and D, the third distance, which is in blue, is greater than the second distance, which is in green; correct? A. Yes. Q. So the third distance is greater than the second distance. A. Yes. Q. So the distance in Figure C is greater than the distance in Figure E. A. Appears to be slightly so.” Ex. 1034, 39:13-41:7.

Claim 1 of ‘177 Patent	Liechty, II
	See also my analysis in Ex. 1019, ¶ 195 (citing Ex. 1012, 12:14-18; Fig. 5).
at least one biasing member biasing the first and second blade members towards the extended positions, the biasing member being the only element operable to hold the blade members in the extended position.	“Q. And the spring causes the blades to move forward in that circumstance; correct? A. The springs are acting upon the blades, yes. In that direction.” Ex. 1034, 30:22-25. “Q. So in your opinion the phrase ‘the biasing member being the only element operable to hold the blade member in the extended position’ means that the biasing member is the only element operable to exert a force on the blade member in the extended position; correct? A. Yes.” Ex. 1034, 91:14-20. “Q. Okay. I want to focus on the word ‘element’ in that claim phrase. Is the phrase ‘element operable’ referring to a component of the broadhead? A. In my opinion, yes.” Ex. 1034, 119:24-120:3. “As seen in Figure 5, the spring 80 is fully compressed which translates to a biasing force towards the forward end resulting in biasing the blade” Ex. 2008, ¶ 116 (emphasis added). As can be seen in Figure 5 in Liechty, II, the spring is the only element of the

Claim 1 of '177 Patent	Liechty, II
	broadhead that exerts a force on the blade member in the extended position. See also my analysis in Ex. 1019, ¶ 196 (citing Ex. 1012, 12:16-18; Fig. 5).

C. Liechty, II discloses all the limitations of claim 11

38. My opening Declaration explains that Liechty, II discloses all the limitations of claim 11. Mr. Willkomm did not dispute in his Declaration that Liechty, II discloses the claim's basic elements, such as a ferrule, a first blade member, a second blade member, and a biasing member. As detailed below, he testified during his deposition that the Liechty, II discloses all of these elements, as well as all other limitations of claim 11.

“A broadhead for an arrow having a shaft, the broadhead comprising: “a ferrule having a rearward end configured for attachment to the shaft and an opposite forward end with a ferrule body extending therebetween, the forward end of the ferrule defining the forward tip of the arrow and being fixed with respect to the ferrule body;”

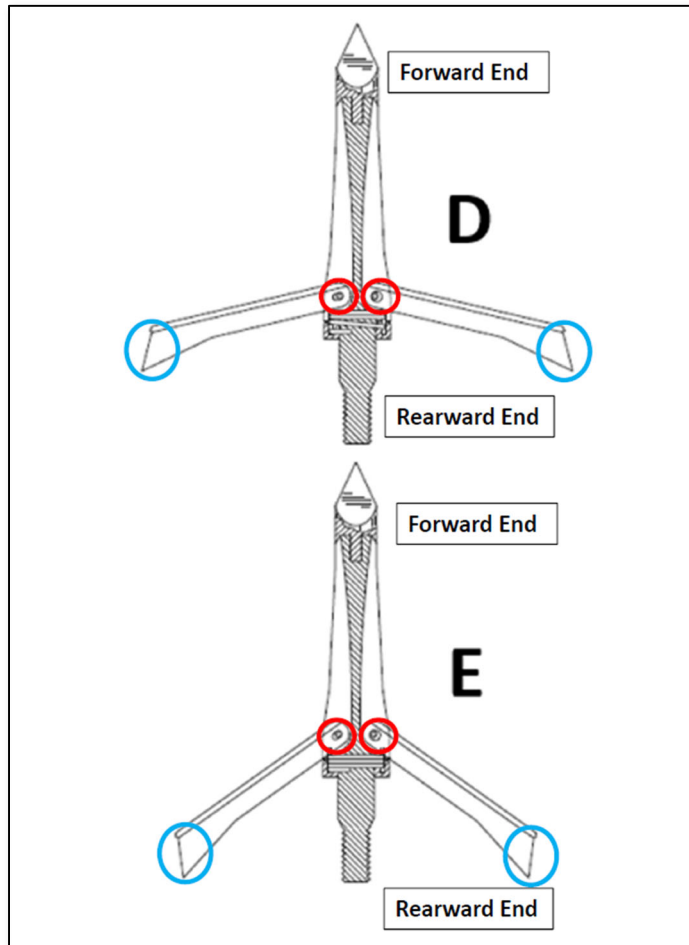
39. Liechty, II discloses a “broadhead” with a “ferrule body.” Ex. 1034, 20:18-21. The ferrule has a “rearward end” and a “forward end.” Ex. 1034, 21:8-18. The “rearward end of the ferrule attaches to an arrow shaft.” Ex. 1034, 21:8-10. The “forward end of the ferrule is at the tip of the ferrule.” Ex. 1034, 21:16-18. The tip is fixed with respect to the ferrule body.

“a first blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,”

40. Liechty. II discloses “two blade members” and “each of the blade members of the Liechty broadhead has two ends.” Ex. 1034, 22:16-21.

41. “[T]he first end of each blade is pivotally connected to the ferrule body.” Ex. 1034, 22:19-23:5. The first end “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. “[T]he blades have a second end” that is “able to freely rotate which is not connected to the ferrule body” and “is spaced a distance away from the ferrule body.” Ex. 1034, 23:6-13.

42. Referring to Exhibit 1025, Mr. Willkomm admitted that “the first ends of the blades, which are circled red, are forward of the second ends of the blades, which are circled blue.” Ex. 1034, 44:1-9. The figures in Exhibit 1025 are juxtaposed with Mr. Willkomm’s testimony below.



Referring to Ex. 1025, Mr. Willkomm testified:

“Q. Sure. So the first ends of the blades, which are circled red, are forward of the second ends of the blades, which are circled blue; correct?”

A. Yes.

Q. In Figure D, the first end of each blade, which is circled red, is forward of the second end of the blades, which is circled blue; correct?”

A. Yes. The ends circled in red are forward of the ends circled in blue. Yes.”

Ex. 1034, 44:1-9.

“the first blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,”

43. Liechty, II discloses the blades in a “retracted position” and an “extended position.” “Claim 11 defines ‘retracted position’ as ‘a first distance between the ferrule body and the rearward end of the blade member.’” Ex. 1034, 83:9-13; Ex. 1001, 6:22-24. “Claim 1[1] defines ‘extended position’ as the rearward end being spaced from the ferrule body by a distance which is greater than the first distance.” Ex. 1034, 83:21-25; Ex. 1001, 6:24-26. The specification of the ‘177 patent uses the exact same language to define the “retracted position” and “extended position.” Ex. 1034, 84:1-4; Ex. 1001, 2:3-7.

44. Exhibit 1024 contains figures depicting the distances between the rearward ends of the blades and the ferrule body as the blades move forward as a result of the force of the annular spring. The figures in Exhibit 1024 are reproduced above.

45. During normal use of the Liechty, II broadhead, the blades will move forward as depicted in Exhibit 1024 when the broadhead: (1) is moving through an animal; (2) the broadhead stops in an animal; or (3) exits an animal. Mr. Willkomm agrees. Ex. 36:1-38:14.

46. As can be seen in Exhibit 1024, when the broadhead is the position shown in Figure E, there is a “first distance” which is “a distance between the end of the blades and the ferrule body.” Ex. 1034, 38:15; 39:13-18. As the blades of the Liechty, II broadhead move forward, they will arrive at “second distance” “between the end of the blades and the ferrule body in Figure D.” Ex. 1034, 39:19-40:5.

47. “The second distance is greater than the first distance.” Ex. 1034, 40:1-12.

48. Stated differently, as the blades of the Liechty, II broadhead move forward from the force of the annular spring, the distance between the rearward end of each blade and the ferrule body gets larger. The figures from Exhibit 1024, reproduced above, illustrate this.

49. Also, as discussed above, the blades in all of the embodiments in the ‘177 patent do the same thing – i.e., as the blades move forward from the force of the annular spring, the distance between the rearward end of each blade and the ferrule body gets larger.

“the pivotal interconnection between the first blade member and the ferrule body being at a fixed position relative to the ferrule body;”

50. The forward end of the first blade member “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the

ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. The pivotal interconnection is fixed relative to the ferrule body. Ex. 1012, 12:16-18; Fig. 5.

“a second blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,”

51. Liechty, II discloses “two blade members” and “each of the blade members of the Liechty broadhead has two ends.” Ex. 1034, 22:16-21.

52. “[T]he first end of each blade is pivotally connected to the ferrule body.” Ex. 1034, 22:19-23:5. The first end “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. “[T]he blades have a second end” that is “able to freely rotate which is not connected to the ferrule body” and “is spaced a distance away from the ferrule body.” Ex. 1034, 23:6-13.

53. Referring to Exhibit 1025, Mr. Willkomm admitted that “the first ends of the blades, which are circled red, are forward of the second ends of the blades, which are circled blue.” Ex. 1034, 44:1-9. The figures in Exhibit 1025 are reproduced above.

“the second blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,”

54. Liechty, II discloses the blades in a “retracted position” and an “extended position.” “Claim 11 defines ‘retracted position’ as ‘a first distance

between the ferrule body and the rearward end of the blade member.” Ex. 1034, 83:8-13; Ex. 1001, 6:32-34. “Claim 1[1] defines ‘extended position’ as the rearward end being spaced from the ferrule body by a distance which is greater than the first distance.” Ex. 1034, 83:14-25; Ex. 1001, 6:34-37. The specification of the ‘177 patent uses the exact same language to define the “retracted position” and “extended position.” Ex. 1034, 83:9-13; Ex. 1001, 2:11-15.

55. Exhibit 1024 contains figures depicting the distances between the rearward ends of the blades and the ferrule body as the blades move forward as a result of the force of the annular spring. The figures in Exhibit 1024 are reproduced above.

56. During normal use of the Liechty, II broadhead, the blades will move forward as depicted in Exhibit 1024 when the broadhead (1) is moving through an animal; (2) the broadhead stops in an animal; or (3) exits an animal. Mr. Willkomm agrees. Ex. 1034, 36:1-38:14.

57. As can be seen in Exhibit 1024, when the broadhead is the position shown in Figure E, there is a “first distance” which is “a distance between the end of the blades and the ferrule body.” Ex. 1034, 38:23-39:5; 39:13-18. As the blades of the Liechty, II broadhead move forward, they will arrive at “second distance” “between the end of the blades and the ferrule body in Figure D.” Ex. 1034, 39:19-40:5.

58. “The second distance is greater than the first distance.” Ex. 1034, 40:1-12.

59. Stated differently, as the blades of the Liechty, II broadhead move forward from the force of the annular spring, the distance between the rearward end of each blade and the ferrule body gets larger. The figures from Exhibit 1024, reproduced above, illustrate this.

60. Also, as discussed above, the blades in all of the embodiments in the ‘177 patent do the same thing – i.e., as the blades move forward from the force of the annular spring, the distance between the rearward end of each blade and the ferrule body gets larger.

“the pivotal interconnection between the second blade member and the ferrule body being at a fixed position relative to the ferrule body; and”

61. The forward end of the second blade member “is connected to the ferrule by the pivot point” and “the pivot point is where the blades are connected to the ferrule body by a hinge pin.” Ex. 1034, 22:19-23:5. The pivotal interconnection is fixed relative to the ferrule body. Ex. 1012, 12:16-18; Fig. 5.

“at least one biasing member biasing the first and second blade members towards the extended positions.”

62. “[T]he spring causes the blades to move forward” because “[t]he springs are acting upon the blades.” Ex. 1034, 30:22-25. “[D]uring use of the

broadhead, the continuing urging force produced by the annular spring drives the blades in a forward direction.” Ex. 1034, 34:23-35:14.

63. For ease of reference, below is a claim chart mapping the requirements of claim 1 to Mr. Willkomm’s testimony that the Liechty, II broadhead contains all the limitations of claim 11.

Claim 11 of ‘177 Patent	Liechty, II
A broadhead for an arrow having a shaft, the broadhead comprising:	“Q. Okay. Figure 5 shows a broadhead. A. Yes.” Ex. 1034, 20:18-19. <i>See also</i> my analysis in Ex. 1019, ¶ 190 (citing Ex. 1012, 10:26-36).
a ferrule having a rearward end configured for attachment to the shaft and an opposite forward end with a ferrule body extending therebetween,	“Q. And that broadhead has a ferrule body? A. Yes.” Ex. 1034, 20:20-21. “Q. So in Figure 5 of Liechty the rearward end of the ferrule attaches to an arrow shaft. A. That is correct.” Ex. 1034, 21:8-10. “Q. And the forward end of the ferrule is at the tip of the ferrule. A. Yes.” Ex. 1034, 21:16-18. <i>See also</i> my analysis in Ex. 1019, ¶ 191(citing Ex. 1012, 10:32, Fig. 5).

Claim 11 of '177 Patent	Liechty, II
the forward end of the ferrule defining the forward tip of the arrow and being fixed with respect to the ferrule body;	“Q. And the forward end of the ferrule is at the tip of the ferrule. A. Yes.” Ex. 1034, 21:16-18. See also my analysis in Ex. 1019, ¶ 191(citing Ex. 1012, 10:32, Fig. 5).
a first blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,	“Q. Sure. So the first ends of the blades, which are circled red, are forward of the second ends of the blades, which are circled blue; correct? A. Yes. Q. In Figure D, the first end of each blade, which is circled red, is forward of the second end of the blades, which is circled blue; correct? A. Yes. The ends circled in red are forward of the ends circled in blue. Yes.” Ex. 1034, 44:1-9. <i>See also</i> my analysis in Ex. 1019, ¶ 204 (citing Ex. 1012, 10:32; Fig. 5).
the first blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,	“Q. The phrase "retracted position" in claim 11 is defined by the distance between the ferrule body and the rearward end of the blade member; correct? A. Yes.” Ex. 1034, 83:9-13. “Q. And claim 1[1] defines extended position" as the rearward end being spaced from the ferrule

Claim 11 of '177 Patent	Liechty, II
	body by a distance which is greater than the first distance; correct? A. Yes.” Ex. 1034, 83:21-25 “Q. And the specification uses the same language when describing the retracted and extended positions; correct? A. Yes.” Ex. 1034, 84:1-4. Referring to Ex. 1024: “Q. So there's a distance between the end of the blades and the ferrule body. We have a red double arrow showing that distance and we've labeled that with a number 1 in the first distance. Do you see that? A. Yes. Q. Okay. Now look at Figure D. Figure D, there's a distance between the end of the blades and the ferrule body in Figure D. We have a green double arrow showing that distance. We labeled that with a number 2, a second distance. Do you see that? A. Yes. Q. Okay. So my question is, the second distance, which is in green in Figure D, is greater than the first distance, which is red in Figure E; correct? A. That is correct. Q. Now let's compare Figures E and D. The second distance, which is in green, is larger than the first distance, which is in red; correct?

Claim 11 of '177 Patent	Liechty, II
	A. Yes. Q. So the second distance is greater than the first distance; correct? A. Yes. Q. So now look at Figure C. In Figure C there's a distance between the end of the blades and the ferrule body. We have a blue double arrow showing that distance. We've labeled that with a number 3, a third distance. Do you see that? A. Yes. Q. And a third distance, which is in blue in Figure C, is greater than the second distance, which is in green in Figure D; correct? A. Appears to be slightly greater, yes. Q. So when comparing Figure C and D, the third distance, which is in blue, is greater than the second distance, which is in green; correct? A. Yes. Q. So the third distance is greater than the second distance. A. Yes. Q. So the distance in Figure C is greater than the distance in Figure E. A. Appears to be slightly so.” Ex. 1034, 39:13-41:7. <i>See also</i> my analysis in Ex. 1019, ¶ 205 (citing Ex. 1012, 12:14-18).
the pivotal interconnection between the first blade member and the ferrule body	“Q. Yes. And in Figure 5 the blades have a first end that are pivotally

Claim 11 of '177 Patent	Liechty, II
being at a fixed position relative to the ferrule body;	connected to the ferrule body by a hinge pin. A. The blades have an end which is connected to the ferrule by the pivot point. Q. Yup. And the pivot point, that's connected -- the pivot point is where the blades are connected to the ferrule body by a hinge pin; correct? A. Yes. Ex. 1034, 22:22-23:5. <i>See also</i> my analysis in Ex. 1019, ¶ 206 (citing Ex. 1012, Fig. 5).
a second blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,	“Q. Sure. So the first ends of the blades, which are circled red, are forward of the second ends of the blades, which are circled blue; correct? A. Yes. Q. In Figure D, the first end of each blade, which is circled red, is forward of the second end of the blades, which is circled blue; correct? A. Yes. The ends circled in red are forward of the ends circled in blue. Yes.” Ex. 1034, 44:1-9. <i>See also</i> my analysis in Ex. 1019, ¶ 207 (citing Ex. 1012, 10:32; Fig. 5).
the second blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position	“Q. The phrase "retracted position" in claim 11 is defined by the distance between the ferrule

Claim 11 of '177 Patent	Liechty, II
wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,	body and the rearward end of the blade member; correct? A. Yes.” Ex. 1034, 83:9-13. “Q. And claim 1[1] defines extended position" as the rearward end being spaced from the ferrule body by a distance which is greater than the first distance; correct? A. Yes.” Ex. 1034, 83:21-25 “Q. And the specification uses the same language when describing the retracted and extended positions; correct? A. Yes.” Ex. 1034, 84:1-4. Referring to Ex. 1024: “Q. So there's a distance between the end of the blades and the ferrule body. We have a red double arrow showing that distance and we've labeled that with a number 1 in the first distance. Do you see that? A. Yes. Q. Okay. Now look at Figure D. Figure D, there's a distance between the end of the blades and the ferrule body in Figure D. We have a green double arrow showing that distance. We labeled that with a number 2, a second distance. Do you see that? A. Yes. Q. Okay. So my question is, the second distance, which is in green in

Claim 11 of '177 Patent	Liechty, II
	Figure D, is greater than the first distance, which is red in Figure E; correct? A. That is correct. Q. Now let's compare Figures E and D. The second distance, which is in green, is larger than the first distance, which is in red; correct? A. Yes. Q. So the second distance is greater than the first distance; correct? A. Yes. Q. So now look at Figure C. In Figure C there's a distance between the end of the blades and the ferrule body. We have a blue double arrow showing that distance. We've labeled that with a number 3, a third distance. Do you see that? A. Yes. Q. And a third distance, which is in blue in Figure C, is greater than the second distance, which is in green in Figure D; correct? A. Appears to be slightly greater, yes. Q. So when comparing Figure C and D, the third distance, which is in blue, is greater than the second distance, which is in green; correct? A. Yes. Q. So the third distance is greater than the second distance. A. Yes. Q. So the distance in Figure C is greater than the distance in Figure E. A. Appears to be slightly so."

Claim 11 of '177 Patent	Liechty, II
	Ex. 1034, 39:13-41:7. <i>See also</i> my analysis in Ex. 1019, ¶ 208 (citing Ex. 1012, 12:14-18; Fig. 5).
the pivotal interconnection between the second blade member and the ferrule body being at a fixed position relative to the ferrule body; and	“Q. Yes. And in Figure 5 the blades have a first end that are pivotally connected to the ferrule body by a hinge pin. A. The blades have an end which is connected to the ferrule by the pivot point. Q. Yup. And the pivot point, that’s connected -- the pivot point is where the blades are connected to the ferrule body by a hinge pin; correct? A. Yes. Ex. 1034, 22:22-23:5. <i>See also</i> my analysis in Ex. 1019, ¶ 209 (citing Ex. 1012, Fig. 5).
at least one biasing member biasing the first and second blade members towards the extended positions.	“Q. And the spring causes the blades to move forward in that circumstance; correct? A. The springs are acting upon the blades, yes. In that direction.” Ex. 1034, 30:22-25. <i>See also</i> my analysis in Ex. 1019, ¶ 210 (citing Ex. 1012, 12:16-18; Fig. 5).

II. VANDEWATER DISCLOSES EVERY LIMITATION OF CLAIMS 11, 12, 15 AND 17 (GROUND II)

64. My opening Declaration details how Vandewater discloses all the limitations of claims 11, 12, 15 and 17.

65. As discussed below, **during his deposition on November 19, 2024, Mr. Willkomm admitted that Vandewater discloses all of the claim limitations of independent claim 11.**

66. Neither the Patent Owner nor Mr. Willkomm dispute my opinions that the Vandewater broadhead discloses all of the other limitations of dependent claims 12, 15 and 17.

67. Therefore, in my opinion, Vandewater anticipates claims 11, 12, 15 and 17.

A. Vandewater discloses all the limitations of claim 11

68. Mr. Willkomm did not dispute in his Declaration that Vandewater discloses the claim's basic elements, such as a ferrule, a first blade member, a second blade member, and a biasing member. As detailed below, Mr. Willkomm testified during his deposition that Vandewater discloses all of these elements, as well as all other limitations of claim 11.

“A broadhead for an arrow having a shaft, the broadhead comprising: a ferrule having a rearward end configured for attachment to the shaft and an opposite forward end with a ferrule body extending therebetween, the forward end of the ferrule defining the forward tip of the arrow and being fixed with respect to the ferrule body;”

69. In my opening Declaration, I cite to, among others, the first and second embodiments described in Vandewater at column 1, lines 33-34; column 3, lines 13-15, column 3, lines 29-30, and column 3, lines 39-36. See Ex. 1019, ¶¶ 93-95. Those embodiments are shown Figures 1-5.

70. “Figures 2 and 3 show a ferrule body” Ex. 1034, 61:20-22. Mr. Willkomm and the Patent Owner do not dispute the ferrule body has a rearward end and a forward end, the rearward end of the ferrule attaches to an arrow shaft, the forward end defines a tip of the ferrule, and the tip is fixed with respect to the ferrule body.

71. Relevant to the analysis below, Mr. Willkomm testified that the “ferrule body” shown in Figures 2 and 3 “contains a threaded portion for receiving a retaining mechanism” that “includes an engaging element such as a ball bearing 34 that is urged toward a notch 24 by a biasing element 36 . . . “the biasing element 36 is disposed within the ferrule body.” Ex. 1034, 62:1-11. He testified that “the biasing element may be a compression spring” and “the blade member is held in the center position due to the ball bearing being urged in the notch by the biasing element.” Ex. 1034, 62:15-24.

“a first blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,”

72. In my opening Declaration, I cite to “a first blade 212” and “a second blade 213,” described in a third embodiment of Vandewater at column 7, lines 33-39; column 7, lines 45-54 and Figures 7-11. Ex. 1019, ¶ 96-97. The first blade 212 and second blade 213 are shown in Figures 7-11 of Vandewater. Mr. Willkomm and the Patent Owner do not dispute that the first blade 212 has a forward end pivotally interconnected with the ferrule body and an opposite rearward end.

73. Relevant to the analysis herein, a POSITA knows from reading the disclosure of Vandewater that the ferrule body 14 and related components (described in the first and second embodiment) can be used with the first blade 212 and the second blade 213 (described in the third embodiment). Ex. 1019, ¶93-97. Mr. Willkomm agreed, testifying at his deposition: “the specification of Vandewater discloses that the ferrule body shown in Figures 2 and 3 can be used with the blade shown in Figures 7 through 10.” Ex. 1034, 64:18-22.

74. A POSITA knows that to use the ferrule body 14 and related components (described in the first and second embodiments) with the first blade 212 and second blade 213 (described in the third embodiment), a POSITA need only: (1) widen the slot in the ferrule body 14 to accommodate the first blade 212 and the second blade 213 shown in Figures 7-12; and (2) add a notched portion to the first

blade 212 and second blade 213. Mr. Willkomm agreed during his deposition, as discussed below.

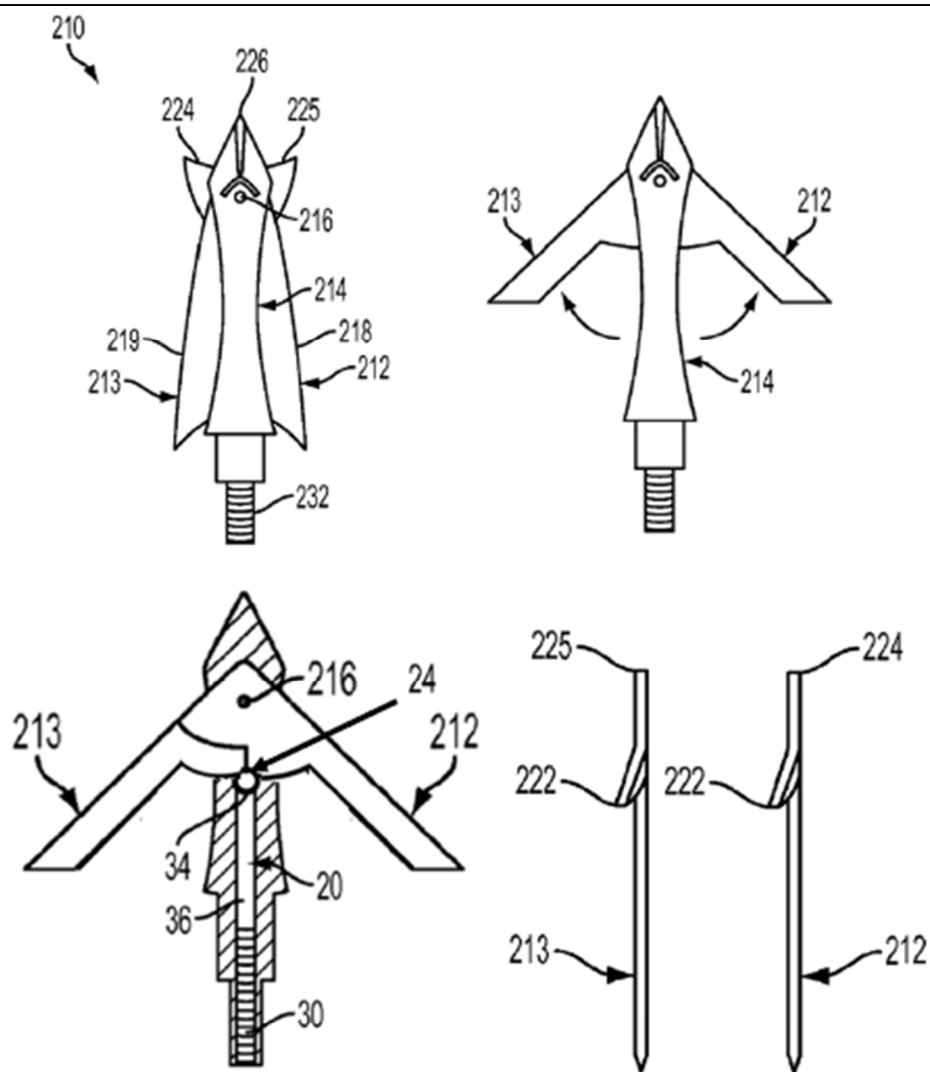
75. First, the specification of Vandewater expressly states that the blades shown in Figures 7-11 can be used with the ferrule body 14 described in the first and second embodiments: “Body 214 may include a pointed portion 226, a passageway or threaded bore 228, and an externally threaded portion 232, similar to body 14, but may further include a wider slot 215 to accommodate at least two overlapping blades (FIG. 12).” Ex. 1003, 6:54-57. Mr. Willkomm agrees, testifying at his deposition: “So the specification states that -- states to widen the slot in the ferrule body 14 to accommodate the two overlapping blades” and “the two overlapping blades are shown in Figure 7 through 11.” Ex. 1034, 65:16-22.

76. Second, Vandewater expressly states that because the ferrule body 14 utilizes a biasing element, a POSITA need only add a notched portion to the first blade 212 and second blade 213:

“Optionally, a retaining mechanism (not shown in FIGS. 7-12) may also be utilized with arrowhead 210, such as **a biasing element with a ball bearing or a spring wheel in accordance with retaining mechanisms disclosed herein.** If a retaining mechanism is employed, first blade 212 and second blade 213 may each comprise **a notched portion of a rear edge (not shown) to create a rear edge substantially similar to those described above when in the deployed position.**

Ex. 1003, 7:55-62. Mr. Willkomm agrees, testifying at his deposition: “The specification states that if a biasing element is used, then the first blades 212 and second blades 213 will have notched portions” and “the purpose of a notched portion is to accommodate the ball bearing or a wheel that's urged by the biasing element . . . for the retention of the ball bearing in that notch.” Ex. 1034, 67:23-68:8.

77. Based on the express disclosure of Vandewater, a POSITA knows that a broadhead that utilizes the ferrule body 14 (described in the first and second embodiments) with the first blades 212 and second blades 213 (described in the third embodiment) lookd like the figures in Exhibit 1026. The figures in Exhibit 1026 are reproduced on the next page.



- 20 - retaining mechanism
- 30 - threaded portion for receiving retaining mechanism
- 34 - ball bearing
- 36 - biasing element
- 210 - arrowhead
- 212 - first blade member
- 213 - second blade member
- 214 - body
- 216 - pivot pin
- 218 - sharpened portion
- 219 - sharpened portion
- 222 - tabs
- 224 - first opening lever
- 225 - second opening lever

78. In response to Mr. Willkomm's Declaration, and to clarify my previous opinions regarding how the Vandewater broadhead utilizing the ferrule body 14 (described in the first and second embodiments) with the first blades 212 and second blades 213 (described in the third embodiment) functions during use, I had an animation created. The animation is attached as Exhibit 1036. In my opinion, the animation accurately depicts how the blades of the Vandewater broadhead move during use of the broadhead.

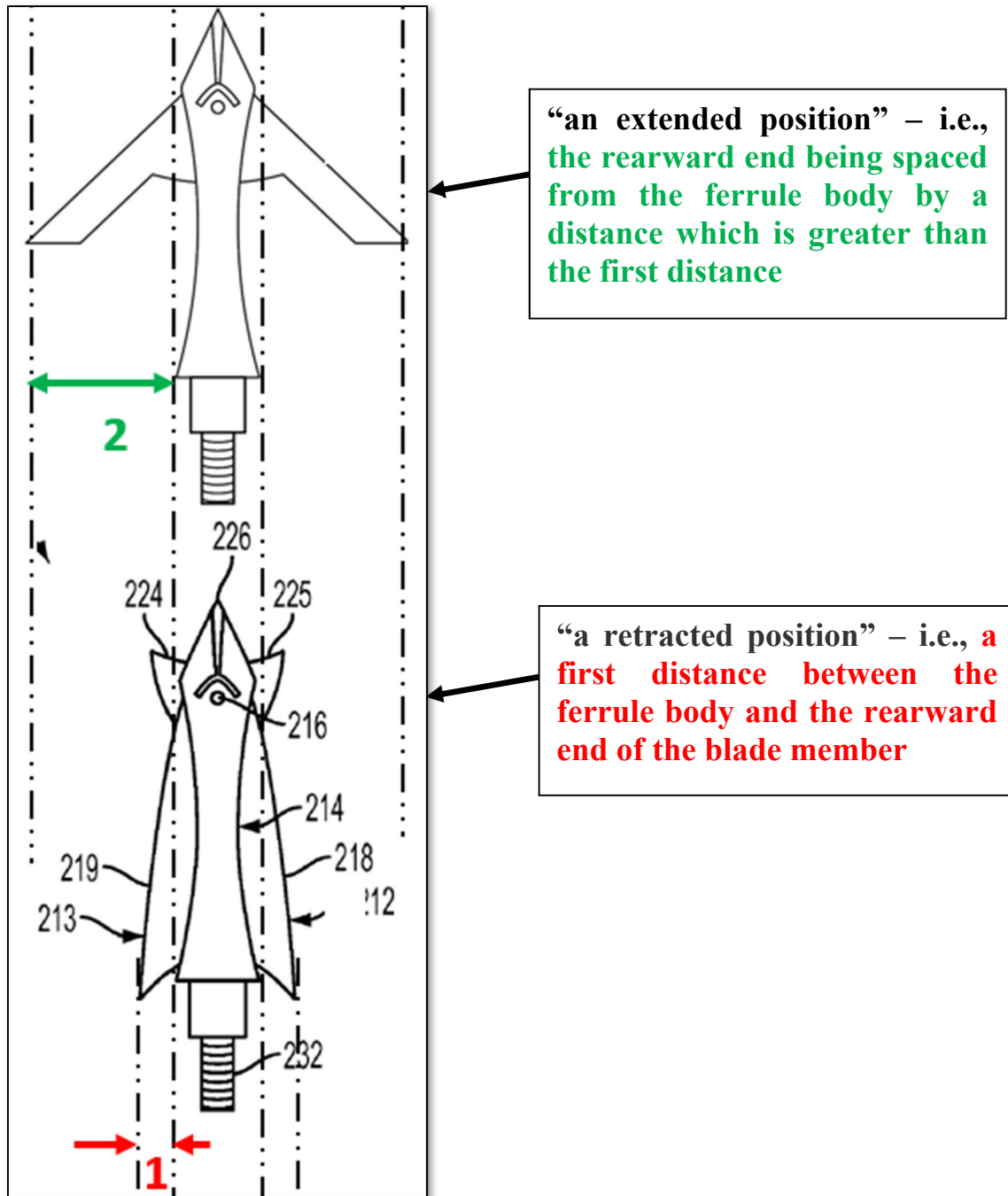
"the first blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,"

79. Vandewater expressly discloses the blade member having a "retracted position" and an "extended position." Again, as discussed above, "Claim 11 defines 'retracted position' as 'a first distance between the ferrule body and the rearward end of the blade member.'" Ex. 1034, 83:9-13; Ex. 1001, 6:22-24. "Claim 1[1] defines 'extended position' as the rearward end being spaced from the ferrule body by a distance which is greater than the first distance." Ex. 1034, 83:21-25; Ex. 1001, 6:24-26. The specification of the '177 patent uses the exact same language to define the "retracted position" and "extended position." Ex. 1034, 84:1-4; Ex. 1001, 2:3-7. Nothing in the claim prohibits (1) when the blades must be in the "retracted position"

or “extended position” or (2) when the blades must move from an “retracted position” to an “extended position. Mr. Willkomm agrees. Ex. 1034, 81:1-17.

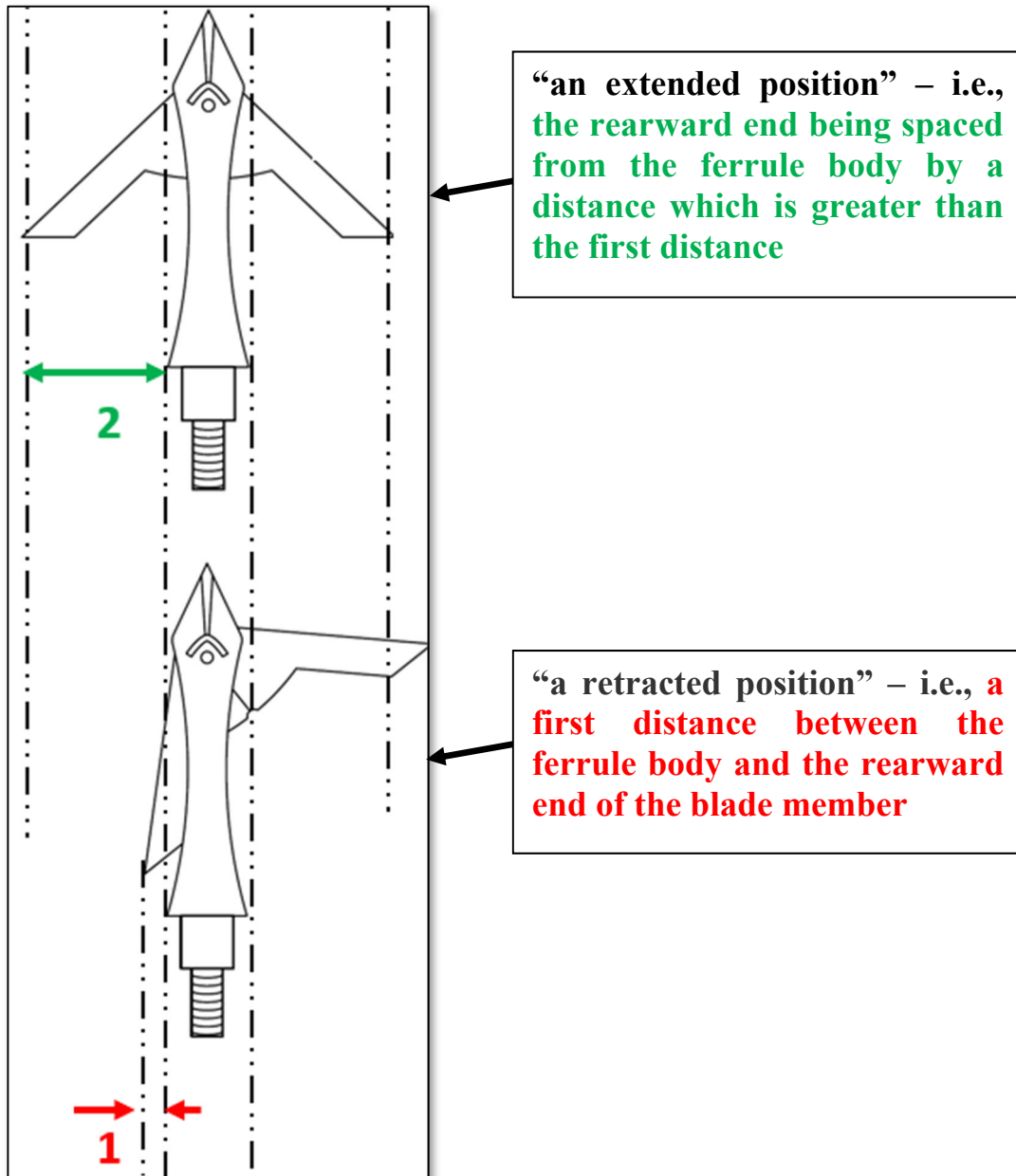
80. As shown in the annotated figures below, Vandewater discloses the first blade having: (1) “a retracted position” – i.e., a first distance between the ferrule body and the rearward end of the blade member; and (2) “an extended position” – i.e., the rearward end being spaced from the ferrule body by a distance which is greater than the first distance.

81. This limitation is satisfied by Vandewater when the first blade 212 moves from the “folded position” (Figures 7 and 10) to the “fully deployed position” (Figures 8 and 11). This is depicted on the following page.



82. This limitation is also satisfied when the first blade 212 pivots rearward from “fully deployed position” (Figures 8 and 11) as a result of a force applied to

the leading edge of the blade that is greater than the spring tension of the biasing element: This is depicted below.



“the pivotal interconnection between the first blade member and the ferrule body being at a fixed position relative to the ferrule body;”

83. The pivotal interconnection between the first blade member and the ferrule body is at a fixed position relative to the ferrule body. This is shown in Figures 7-11 of Vandewater.

“a second blade member having a forward end pivotally interconnected with the ferrule body and an opposite rearward end,”

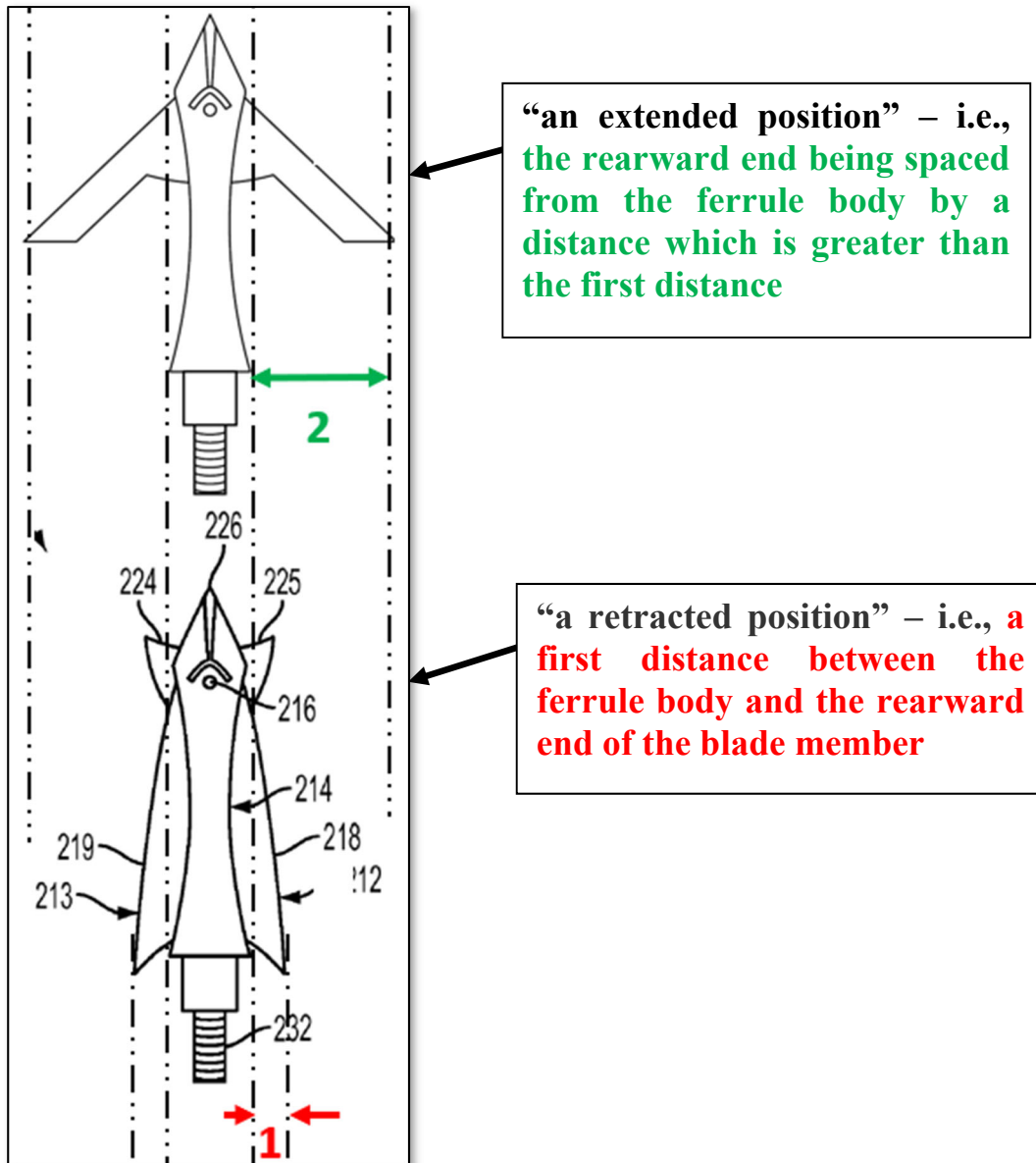
84. As discussed above, and in my opening Declaration, I cite to “a first blade 212” and “a second blade 213,” described in a third embodiment of Vandewater at column 7, lines 33-39; column 7, lines 45-54 and Figures 7-11. Ex. 1019, ¶¶96-97. The first blade 212 and second blade 213 are shown Figures 7-11 of Vandewater. Neither Mr. Willkomm nor the Patent Owner dispute that the second blade 212 has a forward end pivotally interconnected with the ferrule body and an opposite rearward end.

“the second blade member having a retracted position wherein the rearward end is spaced from the ferrule body at a first distance and an extended position wherein the rearward end is spaced from the ferrule body by a distance which is greater than the first distance,”

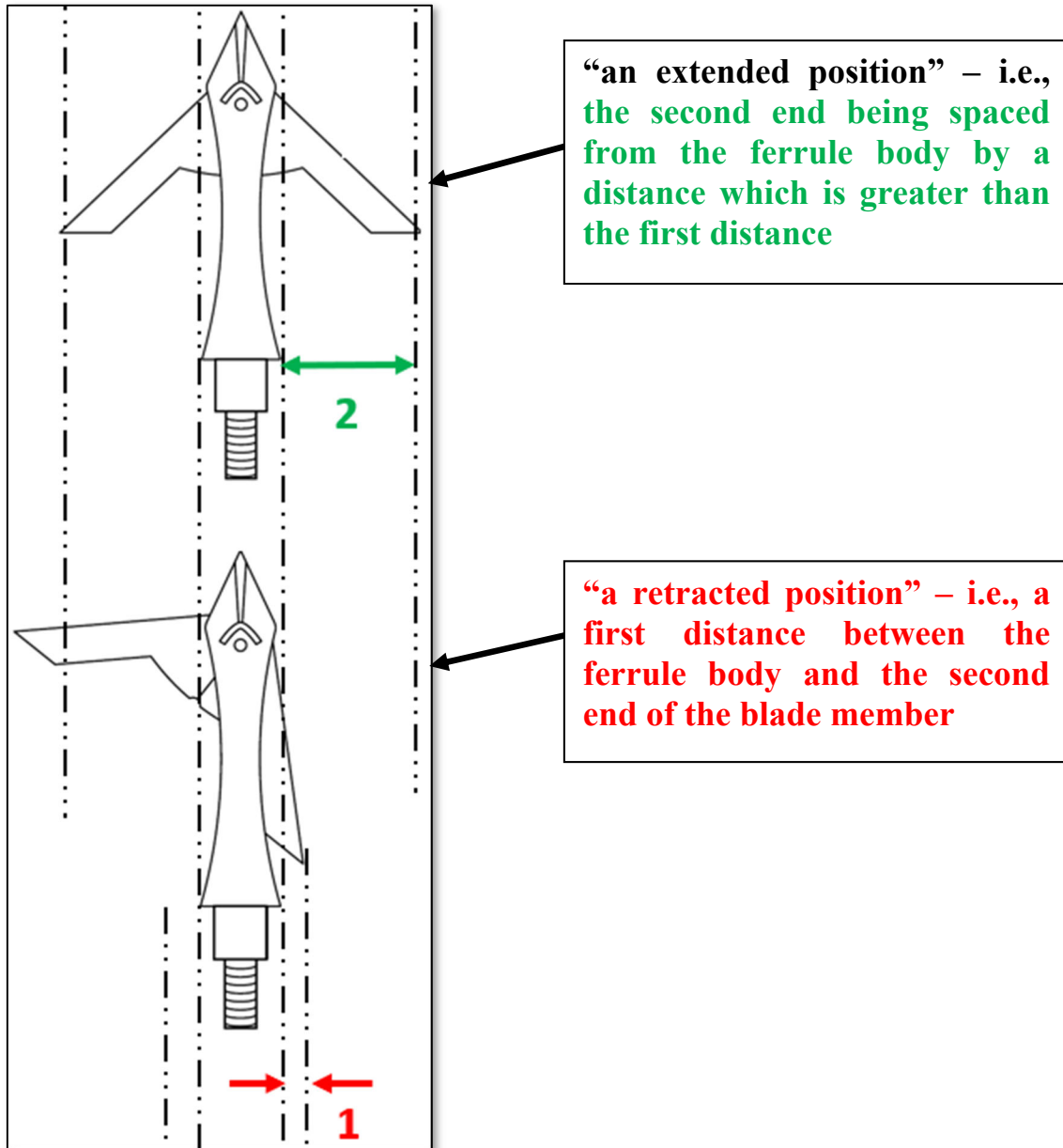
85. As discussed above, “[c]laim 11 defines ‘retracted position’ as ‘a first distance between the ferrule body and the rearward end of the blade member.’” Ex. 1034, 83:8-13; Ex. 1001, 6:32-34. “Claim 1[1] defines ‘extended position’ as the rearward end being spaced from the ferrule body by a distance which is greater than

the first distance.” Ex. 1034, 83:14-25; Ex. 1001, 6:34-37. The specification of the ‘177 patent uses the exact same language to define the “retracted position” and “extended position.” Ex. 1034, 83:9-13; Ex. 1001, 2:11-15. Again, nothing in the claim prohibits (1) when the blades must be in the “retracted position” or “extended position;” or (2) when the blades must move from an “retracted position” to an “extended position.” Mr. Willkomm agrees. Ex. 1034, 81:1-17. Also, “the claims are not limited to blade members that move independently from each other.” Ex. 1034, 87:17-22.

86. This claim limitation is satisfied by Vandewater when the second blade 213 moves from the “folded position” (Figures 7 and 10) to the “fully deployed position” (Figures 8 and 11). This is depicted below.



87. This claim limitation is also satisfied by Vandewater when the second blade 213 pivots rearward from “fully deployed position” (Figures 8 and 11) as a result of a force applied to the leading edge of the blade that is greater than the spring tension of the biasing element. This is depicted below.



“the pivotal interconnection between the second blade member and the ferrule body being at a fixed position relative to the ferrule body;”

88. The pivotal interconnection between the second blade member and the ferrule body is at a fixed position relative to the ferrule body. This is shown in Figures 7-11 of Vandewater.

“at least one biasing member biasing the first and second blade members towards the extended positions.”

89. Vandewater discloses a “biasing element that biases or urges an engaging element into the notch to retain the blade and limit or impede pivotal movement of the blade.” Ex. 1003, 1:42-45. The “biasing force . . . retains the blade in its initial or centered position.” Ex. 1003, 1:64-65. Vandewater discloses:

In addition to holding blade 12 in a centered position relative to body 14, retaining mechanism 20 may also function to dampen pivotal movement of blade 12. **As the amount of force exerted by biasing element 36 on ball bearing 34 increases (such as when ball bearing 34 is urged out of notch 24 by pivotal movement of the blade), ball bearing 34 may act to impede or limit pivotal movement of blade 12 (even after ball bearing 34 has been forced out of notch 24). Thus, a desired resistance to pivotal movement can be achieved by selecting a biasing element 36 capable of delivering a desired amount of force and damping. Pivotal movement or resistance to pivotal movement of blade 12 may be limited or controlled by the configuration of rear edge 22 and/or spring force and/or engagement of the ball bearing 34 with the blade.**

Ex. 1003, 4:27-41.

90. Mr. Willkomm admitted that the “biasing element can be a compression spring” (Ex. 1034, 70:5-7) and that the blades are held in the center position because of the biasing element. Mr. Willkomm testified:

Q. So the blades will be held in the center position because the biasing element is pushing the ball bearing or wheel 34 into the notch 24; correct?

A. More than the resisting force or any force applied on the outside of one or the other of those blades, that is correct.

Q. And the ball bearing or wheel 34 holds the blades in place until the force acts on one of the blades.

A. Enough to overcome the spring compression.

Ex. 1034, 71:2-12.

Q. Yeah. And to that point, if a force greater than the spring tension acts on one of the blades, then the force will cause the notch to disengage from the ball bearing or the wheel; correct?

A. Yes.

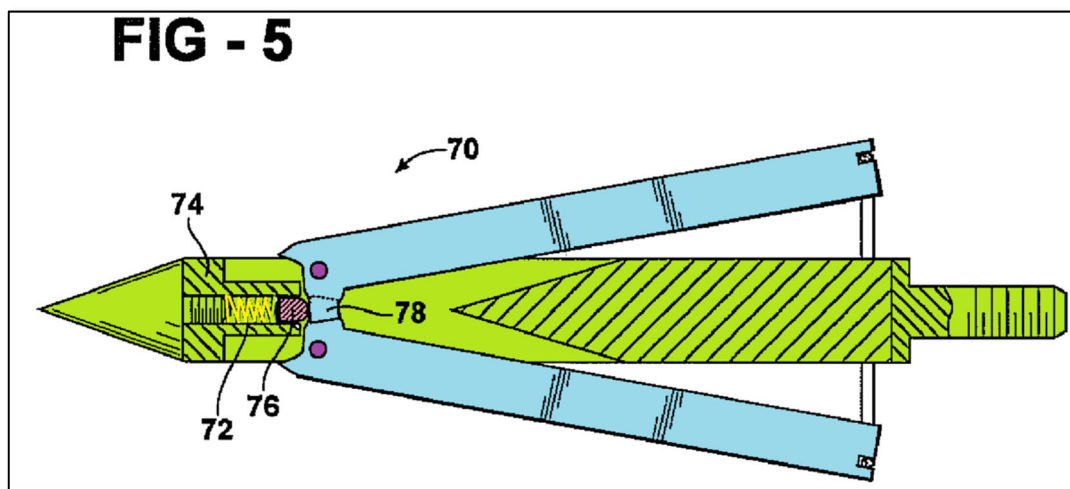
Q. And when the notch disengages from the ball bearing or the wheel, the blade on which the force is applied will pivot rearward, allowing the blade to slide along the bone and clear it.

A. It will not be retained any further, that is correct.

Ex. 1034, 71:15-25.

91. Any argument by Mr. Willkomm or the Patent Owner that the ball bearing 34, not the compression spring, biases the blades makes is critically flawed. A POSITA, or anyone with a basic understanding of mechanics and physics, knows that the spring, not the ball bearing, is the element that generates the force to bias the blades into the fully deployed position. The ball bearing has no force generating ability.

92. Notably, Mr. Willkomm admitted that the embodiment shown in Figures 5 and 6 of the '177 patent would meet the limitation of a “biasing member biasing the first and second blade members towards the extended positions” “even though there's a sliding element 76 located between the spring and the blades.” Ex. 1034, 119:18-23. Annotated version of Figure 5 is shown below, showing the separate slide element highlighted pink.



In other words, Mr. Willkomm testified that “biasing member biasing the first and second blade members towards the extended positions” would be met when a separate element, such as “ball bearing 34” (as in Vandewater), is located between the spring and the blades.” His admission is not surprising because, again, a POSITA knows that the spring, not the ball bearing, is the element that generates the force to bias the blades.

III. LINT DISCLOSES EVERY LIMITATION OF CLAIMS 1-4, 7, 9, 11, 12, 15, AND 17 (GROUND I)

93. In my opening Declaration, I explained how Lint discloses each and every limitation of claims 1-4, 7, 9, 11, 12, 15, and 17. I explained in detail how the broadhead in Lint functions. In response to Mr. Willkomm's Declaration, and to clarify my previous opinions regarding how the Lint broadhead functions during use, I had an animation created, which is shown in Exhibit 1037. In my opinion, the animation accurately depicts how the Lint broadhead functions after it is shot and moves through an animal. The barbs/blades of the Lint broadhead expand forward when the broadhead is moving through an animal. The amount that the barbs/blades expand is dependent on the spring tension and the countering external force (i.e., resistance from hair, skin, flesh, bone, etc.) applied to the leading edge of the barb/blades. The barbs/blades will also expand forward when the broadhead stops in an animal or exits an animal. Mr. Willkomm agrees, testifying:

Q. Sure. When the broadhead disclosed in Lint exit the animal, the outer barbs will rotate forward.

A. Yes.

Q. And stated differently, when the broadhead passes through the entire animal, then there are no more forces against the outer portion of the barbs, thus allowing them to expand forward; correct?

A. Yes. If there are -- is not a resisting force that will prevent that.

Q. Right. How far will those outer barbs rotate forward?

A. As far as their remaining structural integrity having passed through the animal will allow them to.

Ex. 1034, 46:5-18.

So when the broadhead of Lint gets embedded in an animal, depending on the density of the flesh of the animal, the outer barbs will expand at least some amount.

A. All the inner layers from the -- whether it's hair, skin, flesh, bone, that is true. But there will be different amounts because of all those different layers having different resistances.

Q. So depending on the different resistances, the barbs could expand slightly differently.

A. Very small amount or a larger amount, but not fully if they're -- because there'll be too much resistance in most cases.

Q. Under what circumstances will the barbs expand forward when the broadhead is embedded in an animal?

A. I related one in terms of using the example of a white-tail deer, and most other mammal quarry, if they're shot in the abdominal cavity there is a small gap of air in the very top that would not offer resistance. If the blades -- both -- if a blade, either of the blades, are in that void area or air -- dead-air area, they will go as far forward as they can given their remaining structural integrity, having passed through the portion of the animal to get to that point.

Q. So if the broadhead passes completely through the animal, the barbs will expand completely forward; correct?

A. They will expand to the extent forward that they can, given their retained structural integrity and function in the medium on the off side. For example, if it's fish, they will still have the resistance through the water on the back side, which may keep them, along with the change in structural integrity, from fully expanding. But they will expand toward that direction as best they can.

Q. Well, that would depend on the spring tension; correct? If the spring tension was set at a certain rate --

A. That is correct. That is --

Q. -- fully expand.

A. That is correct, sir.

Q. Okay. And it's the spring of the Lint broadhead that causes the outer barbs to move forward or extend; correct?

A. Yes.

Ex. 1034, 47:5-49:3.

94. Mr. Willkomm did not dispute in his Declaration that Lint discloses the claim's basic elements, such as a ferrule and a biasing member. In his declaration, he contends that Lint does disclose a "blade members" or that "the biasing member being the only element operable to hold the blade members in the extended position."

95. As detailed below, Mr. Willkomm's opinions are wrong. Also, as detailed below, his testimony during his deposition on November 19, 2024, contradicts his opinions in his declaration and demonstrates that Lint discloses all of the limitations of claims 1 and 11. I respond to Mr. Willkomm's incorrect opinions below, and identify his testimony during his deposition that confirms that Lint discloses all of the limitations of claims 1 and 11.

A. Interpretation of the term "blade"

96. In my opinion, the ordinary and customary meaning of "blade" is "a tool or device with an edge." I explained this during my deposition on September 6, 2024: "You asked me what a blade was, and I said that it's a -- it's part of a tool or a device, something to that effect, that generally has an edge." Ex. 1040, 87:15-17.

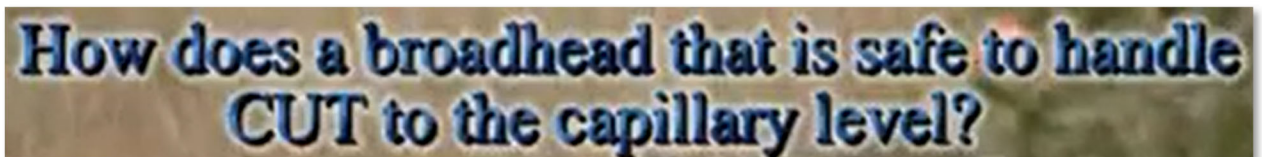
97. Mr. Willkomm states in his declaration that "the plain and ordinary meaning of blade member" requires it "to have a cutting edge or flat sharp part." I disagree with Mr. Willkomm because he provides a flawed interpretation of the term "blade" that is contrary to the claim language, specification, prosecution history, and

how a POSITA would interpret the term “blade.” I disagree with Mr. Willkomm’s interpretation for at least the following reasons.

98. First, in the archery industry, a POSITA knows that a “blade” can either have a sharp edge or a dull edge. In fact, broadheads with dull blades are commonly sold and used in the archery industry for target practice and/or for hunting small game. Such blades do not have a “cutting edge or flat sharp part” – but they still constitute “blades.” Every POSITA knows this, as demonstrated by at least the following prior art listed below:

- a. Ex. 1038, U.S. Patent No. 6,174,252 at 2:49-53 (“It is also apparent that there is a need for an arrowhead that will accommodate fixed blades in addition to and/or in lieu of pivotally mounted blades, for example to accommodate **dull practice blades** or other sharpened fixed blades.”).
- b. Ex. 1039, U.S. Patent No. 4,405,133 at 3:12-15 (“Area and weight and sight picture and flight characteristics are by design practically the same as those of the hunting head simulated. **The blades preferably are dull, not sharp.**”).
- c. Ex. 1010, U.S. Patent No. 4,210,330 (“FIGS. IX through XII show four **different forms of blades**, namely straight, notched, **unsharpened and blunt**”).

99. Second, a POSITA knows that the edge of a blade does not need to be “sharp” in order to cut flesh. For example, prior to the filing date of the ‘177 patent, the Patent Owner, Matthew Futterre, confirmed what every POSITA knows, which is a “safe to handle edge” can achieve cutting of flesh with the addition of velocity and pressure. For example, in a video published by Mr. Futterre, he displays the words “Cut = Velocity + Pressure + Edge.” Ex. 1041, starting at 00:38 minute mark (except below).



How does a broadhead that is safe to handle
CUT to the capillary level?



Cut = Velocity + Pressure + Edge

100. At the 00:38-1:57 minute mark in the video, Mr. Futterre states that a “safe to handle edge” “can achieve capillary level cutting that is based on the laws of physics” and all you need “is an edge to do the cutting plus velocity plus pressure.” He states that it is a “myth that you need scalpel sharp broadhead blades” to achieve cutting. He explains that “any compound bow today even recurves” will cause a broadhead to travel “well in excess of 125-130 miles an hour” and “that velocity coupled with the pressure of being forced through an animal takes this safe to handle

edge and cuts at the capillary level every single time.” Ex. 1041, 00:44-1:57. Likewise, in an internet post made in August 2006 (Ex. 1050, pg. 4), Mr. Futterre (referred to as “Arrowdynamic” in the post) stated:

- “based on the ‘Laws of Physics’. Consider this formula ‘Cut = Edge + Velocity + Pressure’... this is engineering fact, not assu[m]ption based off what grandpa said or marketing hype. To cut, you must have an edge to do the work, velocity of that edge crossing the item wished to cut and enough pressure to force a cut to occur.”
- “All stainless steel razor blades dull upon contact with hair/hide/bone BEFORE it hits soft tissue vitals. Yet they still cut ... that would be due to plenty of Velocity AND Pressure remain to accomplish the cutting action to the capillary level.”

101. “Mr. Willkomm testified that he did not consider Mr. Futterre’s statements when rendering his opinions in this matter. Ex. 1034, 167:13-18 and 168:8-12.

102. Third, Mr. Willkomm conceded during his deposition that a “barb” does not need to have “a cutting edge or flat sharp part” in order for the “barb” to constitute a “blade.” When asked about a well-known bowfishing arrowhead sold under the brand “Muzzy Broadheads,” shown in Exhibit 1031, Mr. Willkomm testified:



Referring to Ex. 1031, Mr. Willkomm testified:

Q. And my question is, in the photograph of the fish point --

A. Yes.

Q. -- do you see any cutting edge or a flat sharp part on the blades?

A. Nope.

Q. So in your opinion does this fish point have blades or barbs?

A. It has both.

Ex. 1034, 163:14-25.

B. The term “blade” and “barb” are often used interchangeably in the archery industry

103. In the archery industry, a POSITA knows that the term “blade” and “barb” are often used to refer to the same thing. In the archery industry, the term “barb” refers to an element of an arrowhead in which the angle formed between the trailing or rear edge of the element and the ferrule is less than 90 degrees. I explained this during my deposition on September 6, 2024.

A. Blades and barbs -- To define a barb in the bowhunting industry, in the archery industry, it refers to the orientation of the blade or the barb to the ferrule. If it's less than 90 degrees, less than perpendicular, then it's considered a barb. So, you can have blades that are barbs. You can have -- You can have blades that are labeled blades that are barbs. So, in the bowhunting world, the archery industry, the terms can be interchangeable, generally.

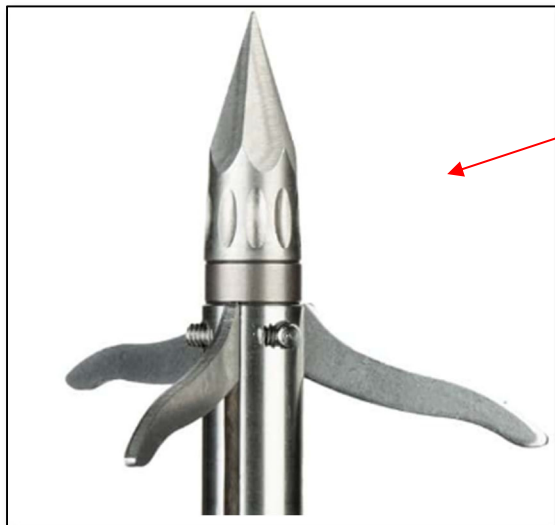
Ex. 1040, 78:22-79:4.

104. The prior art confirms the knowledge of a POSITA, which is the terms “blade” and “barb” are often used interchangeably because they are often used to refer to the same thing. At least the following prior art references confirm the knowledge of a POSITA:

- a. Ex. 1028, U.S. Patent No. 4,819,360 at 1:17-20 (“arrowheads are primarily concerned with the adjustable presentment of **barbs or blades** which prevent escape of the fish or other prey after piercing of the flesh.”).
- b. Ex. 1029, U.S. Patent No. 7,485,056 at 1:21-23 (“Arrowheads are known in which **blades or barbs** are folded against the body while the arrow is in flight and then open on or after impact with the target.”).
- c. Ex. 1048, U.S. Patent No. 3,022,077 at 2:1-2 (“**the blades constitute barb elements** for inflicting wide and deadly wounds in the game.”) (underlining added).
- d. Ex. 1042, U.S. Patent No. 2,909,372 at 2:3-5 (“The member 5 is formed from sheet metal and is substantially triangular in form with **cutting blades or barbs 7 and 8**”).
- e. Ex. 1043, U.S. Patent No. 7,314,419 at 4:62-65 (“**additional blades or smaller projections or barbs 121** can be added to enhance the immobilization of the arrowhead 120.”).

- f. Ex. 1044, U.S. Patent No. 2,373,216 at 3:20-22 (“The rear edges of the **blades 13 may be pointed at 15 to provide barbs**, if it is so desired”) and at 3:49, 4:2, 4:15 and 5:4 (using “barb” and “blade” interchangeably throughout when referring to “blade 22” and “barb 22”).
- g. Ex. 1045, U.S. Patent No. 2,816,766 at 1:62-64 (“**blade element** of the composite arrowhead which is unusually elongated and sharp-pointed and **has wing-like barbs**”).

105. During his deposition, Mr. Willkomm admitted that the terms “blade” and “barb” can refer to the component or element of a broadhead in the archery industry. For example, below are figures from Exhibits 1028-1031, juxtaposed with Mr. Willkomm’s testimony conceding that “blade” and “barb” refer to the same thing.



Referring to Ex. 1031, Mr. Willkomm testified:

Q. And my question is, in the photograph of the fish point --

A. Yes.

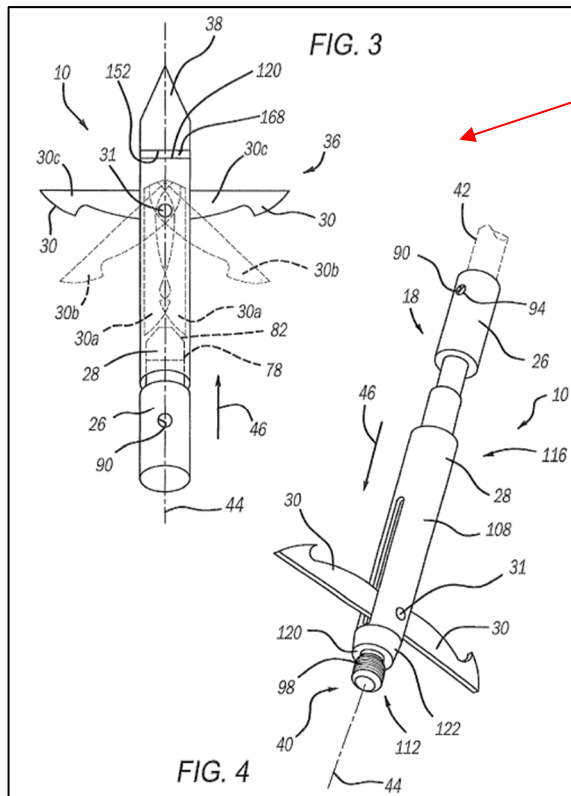
Q. -- do you see any cutting edge or a flat sharp part on the blades?

A. Nope.

Q. So in your opinion does this fish point have blades or barbs?

A. It has both.

Ex. 1034, 163:14-25.



Referring to Ex. 1030, Mr. Willkomm testified:

Q. So in your opinion are the elements labeled 30 blades or barbs?

A. Let's see. I'll go back up the other way now.

(Witness peruses document.)

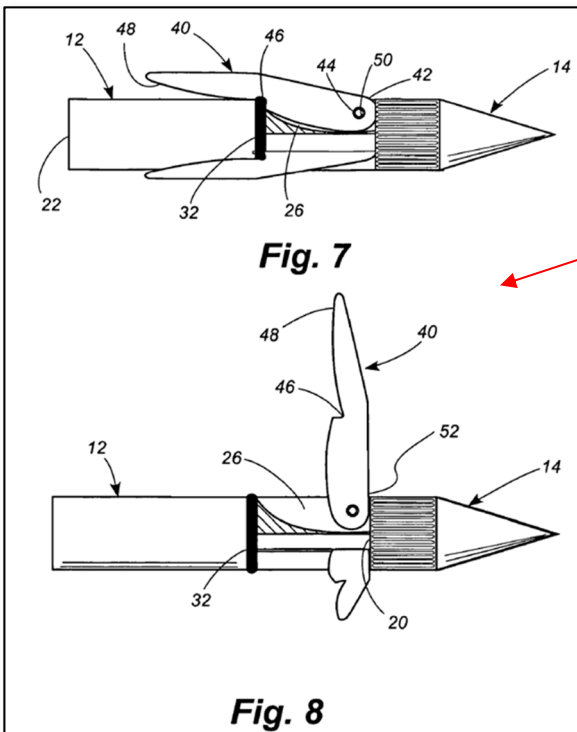
Q. Are you still looking?

A. Yes. I'm looking through. There's 14 figures there, sir.

(Witness peruses document.)

A. Okay. Has characteristics of a barb and some characteristic of blade, but no sharp cutting edge.

Ex. 1034, 160:2-12.



Referring to Ex. 1029, Mr. Willkomm testified:

Referring to Ex. 1029:

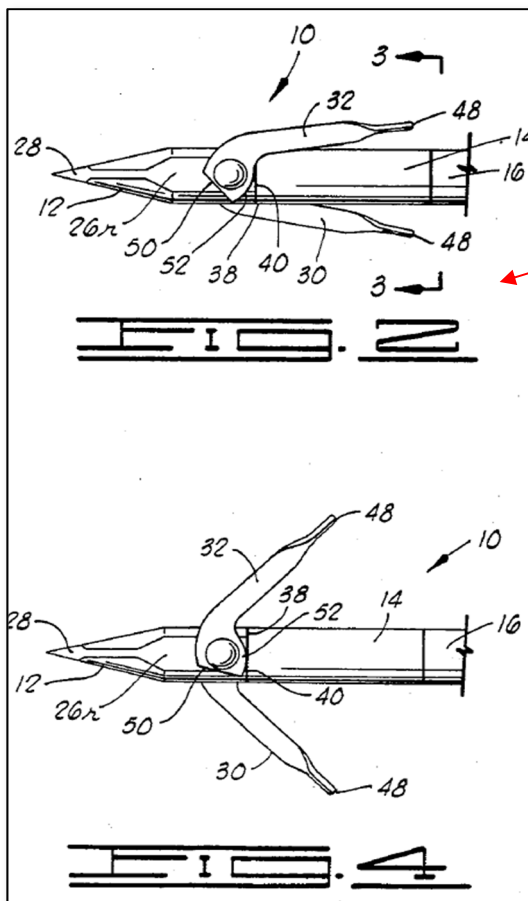
Q. So in your opinion are the elements labeled 40 blades or barbs?

A. They don't appear to have a cutting edge. So they're another cross, it's between a blade and a barb.

Q. So in your opinion the elements labeled 40 are both blades and barbs; correct?

A. It has elements of both but maybe neither.

Ex. 1034, 158:15-22.



Referring to Ex. 1028, Mr. Willkomm testified:

Q. So in your opinion the elements labeled 30 and 32 would be both blades and barbs; correct?

A. They define them as blades. They have characteristics of both.

Ex. 1034, 156:21-24.

C. Mr. Willkomm concedes that all the “blades members” in the ‘177 patent are “barbs” and “barbed broadheads”

106. Significantly, Mr. Willkomm testified that all of the “blade members” shown and described in the ‘177 patent are “barbs.” In Paragraph 77 of his declaration, he states that the plain and ordinary meaning of “barb” is “a projection extending backward from a point having an angle of less than 90 degrees from the body.” Ex. 2008, ¶ 77. During his deposition, he testified that all of the “blade members” in the ‘177 patent are “barbs” – i.e., they “**extend backwards from a point having an angle of less than 90 degrees from the ferrule body.**” Mr. Willkomm testified:

Q. Well, why don't we do this. We reviewed Figures 1 through 8 already. Why don't you take just a couple of minutes and review Figures 1 through 8 and then I'll march through some of my questions, and if we need to go back to a specific figure we can do that.

A. Okay. Okay.

Q. Okay. **So all of the blade members in Flanagan are extending backward from a point having an angle of less than 90 degrees from the ferrule body; correct?**

A. Yes.

Ex. 1034, 123:18-124:4.

Q. Yes. **In paragraph 77 of your declaration you state that the plain and ordinary meaning of the term "barb" is a projection extending backward from a point, having an angle of less than 90 degrees from the body.**

A. Uh-huh.

Q. Do you disagree with that?

A. No.

Ex. 1034, 133:23-134:4.

Q. **Let's take a look at Figures 1 and 2 in Flanagan. Actually -- yeah, okay. Take a look at Figures 1 and 2 in Flanagan.**

A. 1 and 2, okay. I'm looking at 1 and 2 now.

Q. **So the blade members are labeled 20 in the figures; correct?**

A. 20.

Q. And the blade members --

A. That is correct.

Q. **The blade members 20 extend backwards from a point having an angle of less than 90 degrees from the ferrule body; correct?**

A. Uh-huh. Yes.

Q. **And that is the same for all the figures in Flanagan; correct?**

A. Uh-huh.

Q. **Is that a yes?**

A. That is true, as far as it's projecting back.

Ex. 1034, 134:10-135:2.

107. Mr. Willkomm also testified that all of the broadheads shown and described in the '177 patent are "barbed broadheads." In his Declaration, Mr. Willkomm states that Idaho Administrative Code defines a "barbed broadhead as 'a broadhead which has any portion of the rear edge of the broadhead forming an angle less than ninety (90) degrees with the shaft or ferrule.'" Ex. 2008, ¶ 35. During his deposition, he conceded that all of the broadheads in the '177 patent are "barbed broadheads." Mr. Willkomm testified:

Q. So under the Idaho definition of barbed broadheads, all of the broadheads in **Figures 1 through 8 of Flanagan are barbed broadheads; correct?**

A. **They meet the requirements.**

Ex. 1034, 131:15-19.

D. Lint discloses a "first blade member" and a "second blade member"

108. The "barbs 19" disclosed in Lint are "blade members" because they are a tool or device with at least one edge. The edges are clearly shown in Figures 1 and 4 of Lint. I explained this in my deposition on September 6, 2024:

Q. You're referencing Roman numeral 19 that is referred to as a barb by Lint; is that accurate?

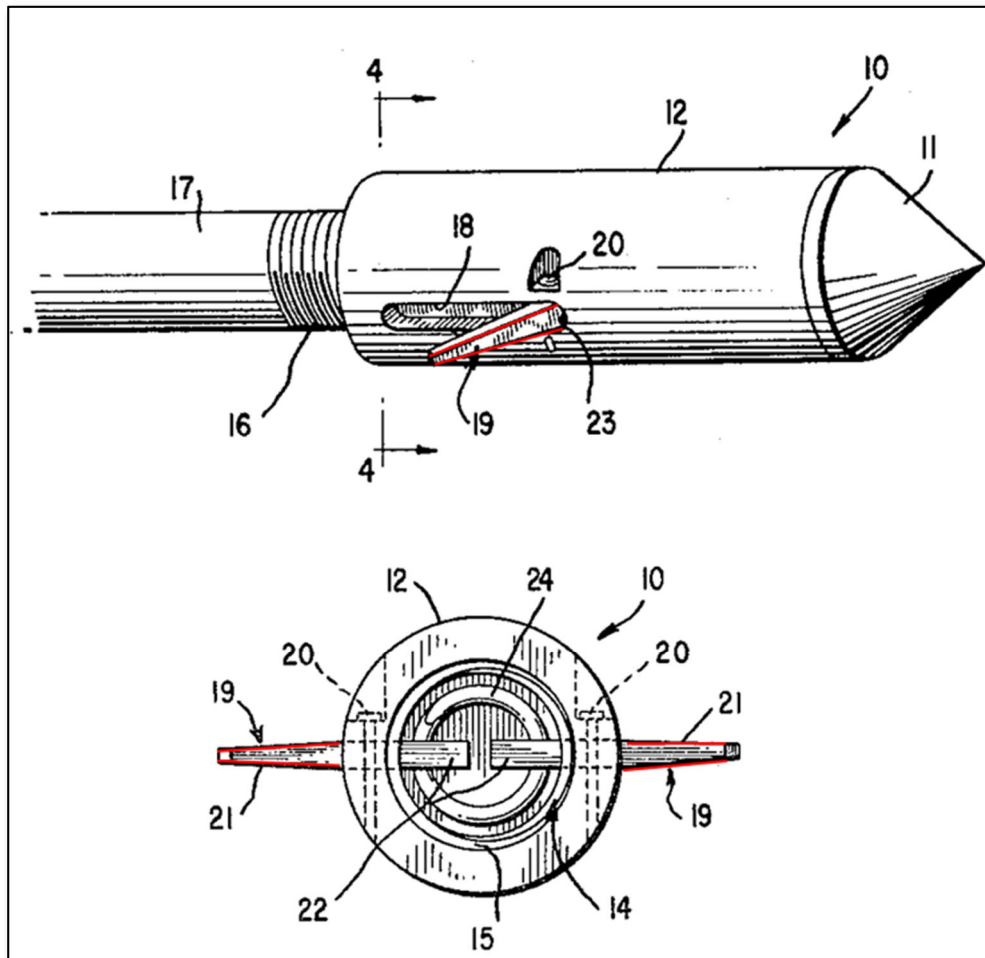
A. **I'm referring to the edge that's obvious in that drawing.**

Q. And you're stating that is a cutting edge?

A. **I am stating it's a cutting edge.**

Ex. 1040, 87:6-11.

109. Figures 1 and 4 from Lint are reproduced below and annotated to identify the edges (outlined in red) on each of the “barbs 19.”



110. Lint refers to the blade members as “barbs” because the angles formed between the trailing or rear edge of the blade members and the ferrule is less than 90 degrees. A POSITA knows that just because Lint’s use of the word “barb” does not change the fact each “barb 19” in Lint is a “blade” – i.e., a tool or device that has an edge. As discussed above, a POSITA knows that the terms “barb” and “blade” are

often used to describe the same element or component of a broadhead, and Mr. Willkomm's deposition testimony, discussed above, confirms this.

111. A POSITA knows each "barb 19" of Lint constitutes a "blade" even though Lint does expressly describe each "barb 19" as being "sharp." As discussed above, the ordinary and customary meaning of "blade" does not require a sharp edge.

E. Each "barb 19" in Lint meets Mr. Willkomm's definition of "blade"

112. Even assuming arguendo that Mr. Willkomm's definition of "blade" is correct, the "barbs" in Lint satisfy Mr. Willkomm's definition because they have both "cutting edge" and a "flat sharp part." The "cutting edge" and "flat sharp part" are shown in the annotated Figures 1 and 4 above.

113. A POSITA knows that the outer edge on each "barb 19" in Lint can cut flesh. As discussed above, a POSITA knows that all that is needed for such an edge to achieve cutting of flesh is velocity and pressure. Mr. Futterre acknowledged this well-known principle in his public statements, as discussed above. Exs. 1041, 1050. During my deposition, I explained:

Q. You're referencing Roman numeral 19 that is referred to as a barb by Lint; is that accurate?

A. I'm referring to the edge that's obvious in that drawing.

Q. And you're stating that is a cutting edge?

A. I am stating it's a cutting edge.

Q. And you're stating that that is deployed while in the flesh of the animal while the arrow is moving?

A. That is deployed in the animal as the broadhead is moving through and it has an edge. You asked me what a blade was, and

I said that it's a -- it's part of a tool or a device, something to that effect, that generally has an edge.

Q. Does that edge need to be a cutting edge or a noncutting edge?

A. **The edge I'm referring to is the edge that the patent owner refers to. The patent owner says that for a broadhead to be lethal, it has to have three things: An edge, velocity or speed, and pressure. That has an edge. You can assume it's going to have speed and pressure when it hits the animal, so yes, that is a cut -- that's a lethal cutting surface. It's a lethal blade, sharpened-edged blade. That's his definition.**

Ex. 1040, 87:6-88:2.

114. I further explained that the edge in Lint **“has a geometry that -- that edge has a geometry that if you push that through, something's going to cut.”**

Ex. 1040, 88:8-10. I explained that Lint's **“barbs/blades, either/or, cut tissue when they go through an animal because they have an edge. They have speed and they have pressure.”** Ex. 1040, 90:25-91:2. The Patent Owner would agree because Mr. Futterre states in Exhibit 1041 that a “safe to handle edge” “can achieve capillary level cutting that is based on the laws of physics” and all you need “is an edge to do the cutting plus velocity plus pressure.” He states that it is a “myth that you need scalpel sharp broadhead blades” to achieve cutting. He explains that “any compound bow today even recurves” will cause a broadhead to travel “well in excess of 125-130 miles an hour” and “that velocity coupled with the pressure of being forced through an animal takes this safe to handle edge and cuts at the capillary level

every single time.” Ex. 1041, 00:44-1:57. He made the similar statement in Exhibit 1050.

F. Lint discloses “the biasing member being the only element operable to hold the blade members in the extended position”

115. Mr. Willkomm defines the phrase “the biasing member being the only element operable to hold the blade members in the extended position” as “the biasing member is the only element operable to exert a force on the blade member in the extended position.” Ex. 1034, 91:14-20.

Q. Sure. And my previous question was, what does "operable to hold" mean? And your answer was that means to exert a force. Correct?

A. That is correct. That is correct.

Ex. 1034, 92:5-8. He also testified that the word “element” in the phrase “element operable” refers “to a component of the broadhead.” Ex. 1034, 119:24-120:3.

116. As I explained in my opening Declaration, Lint discloses a “spring 24” that “operates to bias the barbs 19 in the open position illustrated in by FIGURE 2. Ex. 1002, 2:53-58 and Fig. 2. During his deposition, Mr. Willkomm agreed:

Q. Okay. And it's the spring of the Lint broadhead that causes the outer barbs to move forward or extend; correct?

A. Yes.

Ex. 1034, 48:25-49:3.

Q. Okay. So Lint at column 2, lines 59 through 64, states: "In the operation of the arrowhead 10, when the shaft 17 is retracted away from the inner barb portions 22 of the barbs 19, the spring 24 acts to hold the barbs 19 in the open position of the Figure 2. Under these

circumstances, the arrowhead is in condition for hunting live game"

Did I read that correctly?

A. Yes, you have read that correctly.

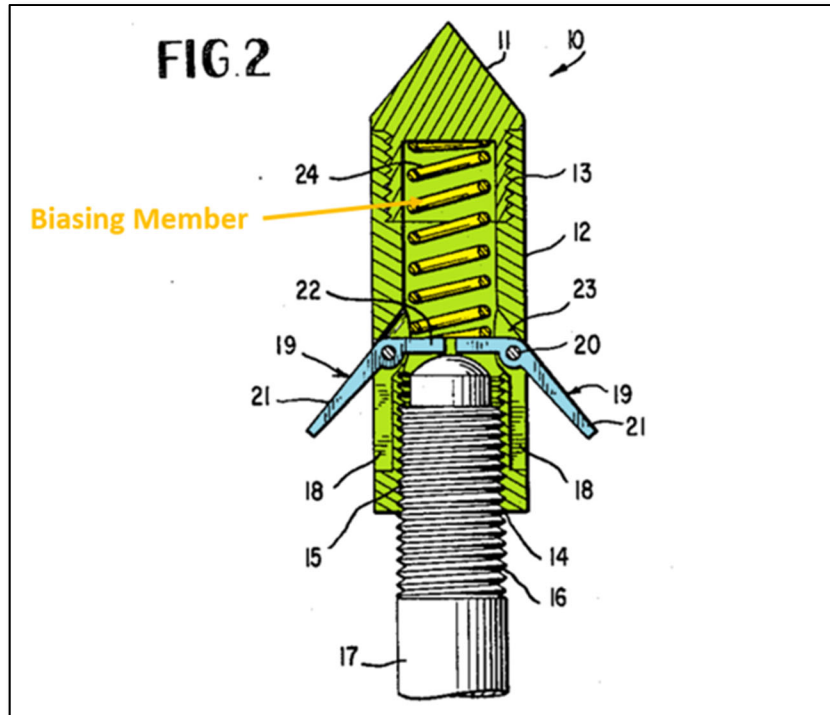
Q. And do you agree with that?

A. Yes, it is in condition to hunt live game.

Ex. 1034, 58:3-15.

117. In his declaration, however, Mr. Willkomm contends that the "spring 24" is not the only element that holds the blades in an extended position. Ex. 2008, ¶ 108. He identifies the "arrow shaft" in his declaration, suggesting that it somehow exerts a biasing force on the blade member in an extended position. Ex. 2008, ¶ 108. Mr. Willkomm's opinion makes no sense, is wrong, and is contradicted by his own deposition testimony for several reasons, as explained below.

118. As already stated above, he testified that the phrase "the biasing member being the only element operable to hold the blade members in the extended position" as "the biasing member is the only element operable to exert a force on the blade member in the extended position." Ex. 1034, 91:14-20. A POSITA knows that the "spring 24" is the only element that is operable to exert a force to bias the barb/blade in the extended position. There is no other component of the Lint broadhead that has this capability. This is readily apparent simply by looking at Figure 2 of Lint. (annotated version shown below).



119. Mr. Willkomm conceded this point during his deposition. He admitted “it's the spring of the Lint broadhead that causes the outer barbs to move forward or extend.” Ex. 1034, 48:25-49:3. He also admitted that he does not know if the top of the arrowhead biases the outer barbs in an extended position and does not know if the top of the arrow shaft exerts any load at all to the barbs:

Q. My question is, does the top of the arrow shaft bias the outer barbs in an extended position?

A. Are you talking about the extended position in Figure 2?

Q. Correct.

A. From the figure in Figure 2 you cannot tell. That's a static figure. And you cannot tell from the figure where there's any load at all from the tip of the arrow shaft onto the -- they are in contact, but you can't tell what the load is, if there is any.

Ex. 1034, 55:18-56:4. He also conceded that the arrow shaft cannot move in the forward direction unless it is screwed into that direction:

Q. And unless that arrow shaft is turned, the arrow shaft cannot move in the forward position; correct?

A. It doesn't move whatever position it's in.

Q. Right. The only way to move it is if you unscrew it or screw it back up.

A. Yes.

Q. So if the broadhead hits a hard surface the arrow shaft isn't gonna move unless the arrow shaft is rotated; correct?

A. Unless you fail the threads by the impact.

Q. Sure. But that's gonna be pretty extraordinary; correct?

A. Yes.

Ex. 1034, 226:2-15. He also conceded that when the arrow shaft is screwed in the forward direction, the blades actually move backward, not forward: “As the arrow shaft is screwed into place, that decreases the distance of the arrow shaft head to the portion of the cavity where the spring is located, thus compressing the springs and allowing the barbs then to go closer into the closed position.” Ex. 1034, 54:20-25.

IV. CLAIMS 1-4, 7, 9, 11, 12, 15, AND 17 ARE OBVIOUS IN VIEW OF LINT ALONE OR COMBINATION WITH MINISINI AND/OR KREIGER (GROUND III)

120. As explained above, in my opinion, it is wrong to read into the claims that the “blade members” must have a “sharp edge.” The word “sharp” does not appear anywhere in the claims, specification, or prosecution history of the ‘177 patent. And the ordinary and customary meaning of “blade” does not require a “sharp edge.”

121. In my opening Declaration I explained that if the Patent Owner contends that the “first blade member” and “second blade member” recited in the claims must have a “sharp edge,” then it would be obvious to simply add a sharp edge to Lint’s “barbs/blades.” I explained that it would have been obvious to a POSITA to simply add a sharp edge to the barbs/blades disclosed in Lint because a POSITA would know that there would be several advantages to adding sharp edges. The advantages of doing so is disclosed in the prior art and widely known within the knowledge of a POSITA.

A. Adding sharp edges to barbs/blades is a known and common practice

122. A POSITA knows that hunters have been adding sharp edges to barbs/blades for centuries, and that the process for doing so is very easy. Mr. Willkomm’s contention that a POSITA would not add a sharp edge to Lint’s barb/blades is simply absurd and contrary to known practices and common knowledge in the archery industry.

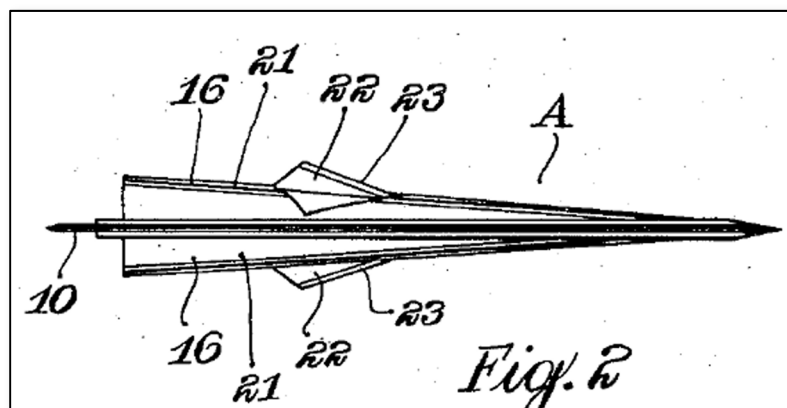
123. The prior art confirms the knowledge of a POSITA that adding sharp edges to the barbs, such those in Lint, is a known and common practice. Hunters have been adding sharp edges to barbed broadheads for centuries. The prior art is replete with ancient broadheads containing sharpened barbs. Ex. 1014; Ex. 1031, pg. 4; Ex.1049, pg. 1 (“This long barbed broadhead was used for hunting large game . . . The long barbs have the maximum length of cutting edges”) (excerpt shown below).



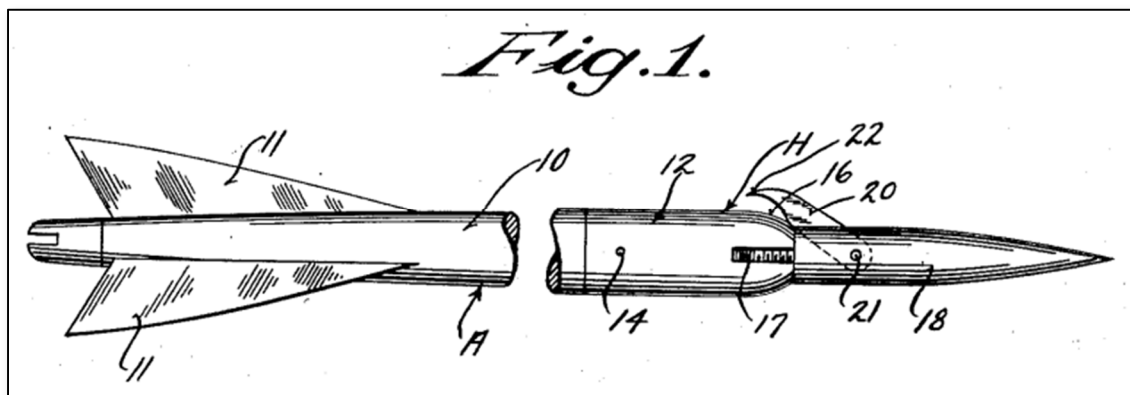
Type 15 Devizes Swallowtail Broad head

This long barbed broad head was used for hunting large game. It not only flew well but also cut a deep wound. The long barbs gave the maximum length of cutting edges and minimum weight and wind resistance in flight.

124. More recently, published in 1945, U.S. Patent No. 2,373,216 (“Zwickey”) expressly teaches that “the forward edges 23 of the barbs [22] are sharpened so to provide a cutting surface.” Ex. 1044, 3:52-54. I explained this during my deposition on September 6, 2024: “As I said, this is to demonstrate in a preferred embodiment that a barb would be sharpened. There's lots of embodiments in the prior art talking about sharpening barbs to increase their cutting -- their ability to cut. As I mentioned, Zwickey was probably the first to do it in 1945.” Ex. 1040, 95:18-22. An exemplary figure from Zwickey is reproduced below and it shows barbs 22 with sharpened edges 23.



125. Also, published in 1957, Minisini expressly teaches sharpening the leading edge of an expandable barb, stating the “barb preferably has its outer longitudinal edge sharpened to cut through a fish.” Ex. 1005, 2:31-34. An exemplary figure from Minisini is reproduced below and it shows the outer edge of the expandable barb 20.



126. Adding a sharp edge is an easy and simple process and well within the known capabilities of a POSITA. A POSITA knows that a sharp edge can be added to a barb by using a sharpening stone (whetstone), file, or, alternatively, a “pull through” sharpener. In doing so, a POSITA would maintain a consistent angle along the barb while gently drawing the barb across the stone or file, or alternatively pulling the barb through the “pull-through” sharpener, repeating on both sides until a sharp edge is achieved. During his deposition, Mr. Willkomm described a similar way to do it, which takes little time and effort:

“Q. I asked you, how would you do it? How would you add a sharp edge to a barb?

A. If I were to do it, I would probably hold it in a vise so that a portion of the barb was exposed, and then use a file at an angle to file on it. And depending on how hard or what kind of material and the hardness of the barb would determine how long it would take to put an edge on the barb. And I'd have to do it first on one side and then on the other side, to put a sharp edge on it.”

Ex. 1034, 166:16-167:2.

Q. How is the cutting edge formed? Is it filed in the fashion that you described earlier, taking a file and created an edge?

A. Yes.

Ex. 1034, 172:7-10.

127. In his declaration, Mr. Willkomm makes the conclusory contention that “a POSITA would understand adding a cutting edge to the barb of Lint would negatively affect the strength of the barb. Shaving off a portion of the outside edge reduces the structural integrity of the barb and creates a situation in which the barb is likely to fail.” Ex. 2008, ¶ 98. Mr. Willkomm’s conclusory contention is wrong. It is common knowledge to a POSITA that mechanical broadhead components, including barbs/blades are commonly made from various steels, including for example high carbon steel stainless steel because of their known strength and durability. Mr. Willkomm agrees. Ex. 1034:169:17-25 (testifying making broadheads from “various steels” including “stainless steels as well as 4130 steels, as well as 303 stainless and other steels”). Reading the disclosure of Lint, a POSITA would apply that common knowledge and would know to make the Lint broadhead

with strong and durable steel components. Mr. Willkomm's contention wrongly assumes that the components of the Lint broadhead are not made from such strong and durable components. Notably, Mr. Willkomm admitted during his deposition that his assumption was not supported by any evidence:

Q. And my question is, **in preparing your opinions in this case, do you remember any disclosure in Lint indicating what the barbs are made of?**

A. No.

Q. Okay.

A. That's why I'm looking at it.

Q. Yeah. **When you were reading Lint in forming your opinions in this case, did you see any material identified for making the barbs? Is that the same answer?**

A. Yes.

Ex .1034, 59:8-18.

B. The Lint broadhead is not limited to fishing

128. In his declaration, Mr. Willkomm makes the conclusory and incorrect statement that the Lint broadhead is "used for fishing versus hunting game like deer or elk." Ex. 2008, ¶ 34. Mr. Willkomm's statement is a red herring for several reasons. First, there is nothing in the language of the claims that limit the type of animal that may be hunted with the claimed broadhead. Mr. Willkomm admitted this during this deposition.

Q. Based on your review of claims 1 and 11, **there's nothing in the language of those claims that limit the type of animal that can be hunted with the broadhead; correct?**

A. No, there's no mention of animal.

Q. So there's no limitation in claims 1 and 11 restricting the type of animal that the broadhead can be used to hunt.

A. That is correct.

Ex. 1034, 86:8-16.

Q. And my question is that the claims 1 and 11 are not just limited to hunting, they can be used for target practice as well; correct?

A. There's no statement of use of any kind in claim 1 or claim 11 that I see. It's a discussion of the broadhead and various positions of the broadhead components.

Ex. 1034, 87:6-12.

129. Second, there is nothing in the disclosure of Lint that limits the use of the Lint broadhead to fish. Rather, quite the contrary, Lint discloses a “hunting arrowhead” and Lint expressly states that it can be used for “field shooting, hunting, target practice, fishing and many others, but these various applications of archery equipment may be broadly categorized under the general headings of target usage and hunting usage.” Ex. 1002, 1:14-18. Lint discloses that the Lint broadhead is used for hunting “animals” and “hunting live game.” Ex. 1002, 2:62-64. A POSITA knows that “animals” and “live game” include many different animals, not just fish. In fact, Mr. Willkomm testified during his deposition that the Lint broadhead is “in condition to hunt live game” (Ex. 1034, 58:3-15) and “live game” includes “deer,” “rabbits,” “wild turkey,” “black bear,” “coyotes”, and “birds” and other animals (Ex. 1034, 10:11-11:20).

V. SIGNATURE

130. I hereby declare that all statements made in this declaration of my own personal knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the U.S. Code.

Executed on December 17, 2024

A handwritten signature in black ink, appearing to read "Todd A. Kuhn", written in a cursive style.

Todd A. Kuhn, Ph.D.