

Page 1 1 UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD 2 3 RAVIN CROSSBOWS, LLC,)) 4 Petitioner,)) 5 vs.) Case No. IPR2024-00522) Patent No. 8,683,989 6 MCP IP, LLC,)) 7 Patent Owner.) 8 9 10 11 12 13 VIDEOCONFERENCE DEPOSITION OF CHARLES REINHOLTZ, PHD TAKEN ON BEHALF OF THE PETITIONER 14 FEBRUARY 11, 2025 15 VIDEOCONFERENCE DEPOSITION OF CHARLES 16 REINHOLTZ, PHD, produced, sworn, and examined on the 11th 17 day of February 2025, between the hours of 9:00 18 o'clock in the forenoon and 6:00 o'clock in the 19 evening of that date via Zoom videoconference, before 20 KARA D. INCE, a Certified Court Reporter within and 21 for the State of Missouri, in a certain cause now 22 pending UNITED STATES PATENT AND TRADEMARK OFFICE, 23 BEFORE THE PATENT TRIAL AND APPEAL BOARD, wherein 24 RAVIN CROSSBOWS, LLC, is the Petitioner and MCP IP, 25 LLC is the Patent Owner.	Page 3 1 APPEARANCES 2 For the Petitioner: 3 MR. CHRIS SCHMIDT ERISE IP, P.A. 4 7015 College Boulevard, Suite 700 Overland Park, Kansas 66211 5 chris.schmidt@eriseip.com (913) 777-5600 6 For the Patent Owner: 7 MR. MATTHEW A. COLVIN 8 FISH & RICHARDSON, P.C. 60 South Sixth Street, Suite 3200 9 Minneapolis, Minnesota 55402 colvin@fr.com 10 (214) 292-4013 11 The Court Reporter: 12 Ms. Kara D. Ince, RPR, CCR Missouri CCR No. 1348 13 Lexitas Legal 1608 Locust Street 14 Kansas City, Missouri 64108 (816) 221-1160 15 16 17 18 19 20 21 22 23 24 25
Page 2 1 TABLE OF CONTENTS 2 EXAMINATION 3 Questions by Mr. Schmidt 4 4 5 EXHIBITS: 6 Exhibit No. 2018 Declaration of Dr. Charles Reinholtz 7 7 8 Exhibit No. 1001 Patent 8,683,989 18 9 10 Exhibit No. 1005 Islas Reference 32 11 12 CERTIFICATE OF REPORTER 72 13 ERRATA SHEET 73 14 SIGNATURE PAGE 74 15 16 17 18 19 20 21 22 23 24 25	Page 4 1 ***** 2 (The deposition commenced at 9:57 a.m.) 3 THE COURT REPORTER: We are on the record. 4 My name is Kara Ince. I am a Missouri Certified 5 Court Reporter, CCR License No. 1348. Today's date 6 is February 11, 2025. Will the witness please raise 7 their right hand. 8 CHARLES REINHOLTZ, 9 of lawful age, being produced, sworn, and examined 10 on behalf of the Petitioner, deposes and says: 11 EXAMINATION 12 BY MR. SCHMIDT: 13 Q. Good morning, Dr. Reinholtz. 14 A. Good morning, Chris. 15 Q. So my name is Chris Schmidt, and I'm from 16 the law firm Erise IP representing the petitioner, 17 Ravin Crossbows, LLC. 18 And -- and who else do you have with you 19 there? 20 A. In the room with me, just Mr. Colvin. 21 Q. Dr. Reinholtz, can you, please, state your 22 full name for the record. 23 A. Charles Frederick Reinholtz. 24 Q. And where are you testifying from today? 25 A. I am in the Fish & Richardson office suite

Page 5 1 in Dallas, Texas. 2 Q. And have you been deposed before? 3 A. Yeah. 4 Q. About how many times? 5 A. On the order of 50. 6 Q. Wow. Okay. So I -- I probably don't need 7 to go over the ground rules, but I'll just cover 8 very briefly that we do have a court reporter here; 9 so I would just ask that you provide verbal answers 10 so the court reporter can record your answers and 11 create an accurate record. 12 Does that work for you? 13 A. Yeah, of course. 14 Q. And if for any reason you don't understand 15 one of my questions or if the question is unclear to 16 you, please, just let me know, and I'll be happy to 17 rephrase it or to clarify the question; so the 18 record is clear. 19 Does that work for you? 20 A. Yeah. 21 Q. Okay. And I usually take breaks about 22 every hour, but if you need a break earlier than 23 that, please, let me know, and I would just ask if 24 there -- that if there is a pending question, that 25 you, please, answer the question before we go on a	Page 7 1 So I can work from a hard copy or I can work from 2 what I have on my computer or if you want to send me 3 something in a chat, I could work from that, as 4 well. 5 Q. Okay. Thank you. 6 I'm going to go ahead and put a copy of 7 Exhibit 2018 into the chat, just so the court 8 reporter has it, but you're welcome to use your 9 printed copy or electronic copy, if you prefer. 10 (Deposition Exhibit No. 2018 was marked 11 for identification.) 12 A. Okay. 13 MR. SCHMIDT: And, Ms. Ince, I just got 14 a- -- an error that the file size is too large. 15 (Discussion off the record.) 16 BY MR. SCHMIDT: 17 Q. So, Dr. Reinholtz, could you, please, turn 18 to Paragraph 18 of Exhibit 2018. 19 A. Okay. I'm there. 20 Q. Okay. Now, is it correct that for your 21 analysis that you provided in this declaration, that 22 you considered the relevant time frame of the 23 inventions for the '989017 and '831 patents as 24 September 30th, 2009? 25 A. Yes, that's correct.
Page 6 1 break. 2 Is that okay? 3 A. Yeah. 4 Q. And, Dr. Reinholtz, do you understand that 5 you're under oath today? 6 A. Yes, I do. 7 Q. And are you aware of any reason that you 8 cannot testify truthfully and accurately today? 9 A. No. There's no reason I cannot be 10 truthful and -- and accurate. 11 Q. And are you -- are you being compensated 12 for your time today? 13 A. Yes, I am. 14 Q. And what is your hourly rate for your time 15 on this case? 16 A. It's my standard hourly rate I charge on 17 every case, \$500 an hour, flat rate. 18 Q. And do you have a copy of your declaration 19 in front of you that was submitted as Exhibit 2018 20 in these proceedings? 21 A. I do, yes. I have it both in hard copy, 22 and I have -- I -- I've placed in a folder on my 23 computer a copy of the number of the files that are 24 relevant that may come up today, exhibits and 25 patents and file history that I have in a folder.	Page 8 1 Q. Okay. And what is -- was it important to 2 you to consider that time frame when rendering your 3 opinions? 4 A. Well, in -- in rendering opinions, 5 generally, the case that the -- a perspective of a 6 person of ordinary skill of the art is taken around 7 this -- this date -- the invention date, and so I 8 don't know that anything would have changed 9 significantly in my analysis, had I considered some 10 later date, for example, but I tried to focus on 11 this date. So I -- it is important to consider the 12 date. Sometimes technology changes. 13 Q. And can you, please, turn to Paragraph 42 14 of the same exhibit, 2018. 15 A. Okay. I'm on Paragraph 42. 16 Q. Okay. You state in Paragraph 42 that the 17 draw length is 30 inches, and is there anything 18 particularly advantageous about a draw length of 19 30 inches, specifically? 20 A. Well, I -- I do talk about the draw 21 length. So in the middle of that paragraph, there 22 is a sentence that says, The draw length of the -- 23 the draw length module of the bow is adjustable to 24 the maximum draw of 30 inches. And so the -- the 25 Menace bow, which is what we're talk about, which I

Page 9 1 have in front of me here, you can see the module. 2 And this bow is, in particular, designed to have a 3 range of adjustability from 17 all the way to 30; so 4 it's got a significant range. And that allows it to 5 be adjusted to be adapted for different users, for 6 example, beginning teenage archer could use it with 7 a smaller draw length and a lower -- a draw forth. 8 And a more experienced archer -- bigger archer or 9 strong one could use it, with longer arms could use 10 it at a drawing of 30. So that range is really 11 important, yes. 12 Q. And in your opinion, would there be an 13 advantage to providing an even longer draw length, 14 such as 31 or 32 inches? 15 A. There certainly could be. All other 16 things being equal, a -- a greater adjustability can 17 be advantageous, but there can be trade-off in the 18 design, as well; so it has to be considered 19 holistically. 20 Q. Sure. 21 And in your opinion, are there any 22 specific barriers that need to be overcome to 23 achieve a longer draw length, for example, 31 or 24 32 inches in the bow you just showed? 25 A. Ye- -- yes, there are a number of	Page 11 1 all of the patents and in the provisional patent, 2 this ability to rotate further by -- by moving the 3 terminal and using the a -- the capstan. It does 4 allow a greater draw length where it -- 5 (Reporter clarification.) 6 THE WITNESS: Capstan, C-A-P-S-T-A-N. Not 7 a common word. 8 A. So by moving the -- by using a capstan and 9 by moving the terminal to the outer edge of the -- 10 the rotatable member, you can achieve ad- -- an 11 additional angle of rotation of the cam, which can 12 give greater draw length. 13 BY MR. SCHMIDT: 14 Q. And is that additional rotation of the cam 15 enabled by the reverse wrap design over, say, the 16 forward wrap design? 17 A. I think it's possible. There may -- there 18 may be other ways to achieve the same result, but 19 certainly in the patent, it talks about the -- 20 moving that terminal post out to achieve a greater 21 rotational angle of the -- the cam or the rotatable 22 member. So certain- -- it's certainly a factor in 23 allowing a greater rotation of the cam and, 24 therefore, greater draw length. 25 Q. And you also state in Paragraph 42 that,
Page 10 1 considerations. One is the size of the rotatable 2 member of the cam itself; though, a larger cam tends 3 to give longer draw lengths. But it also has some 4 disadvantages, making a large cam -- one, for 5 example, requires more material and, perhaps, more 6 machining; so there can be -- there can be a 7 downside to that. And I -- the key -- on one of the 8 key aspects of the invention is allowing the cam to 9 rotate further by -- by moving that terminal point 10 outside, and we see a greater rotation. 11 So -- but there -- yeah, there -- there 12 can be tradeoff, but having a longer draw length 13 with everything else being equal is generally a 14 positive. I'd have to see a specific case to see 15 what the disadvantages might be, but, generally, if 16 everything is equal, it's advantageous. 17 Q. And you stated that one of the key aspects 18 of the invention is, allowing the cam to rotate 19 further by moving the terminal point outside, and 20 that allows a greater rotation. 21 Does that allow for a longer draw length, 22 as well? 23 A. Yes. All other things being equal, the 24 cam can rotate, but an additional -- through an 25 additional angle, and that's pretty clearly shown in	Page 12 1 The power cables are in contact with the flat 2 portion of the draw length module, and rotation of 3 the cam stops just before the capstan contacts the 4 power cable. 5 Does having the cam stop before the power 6 cable contacts any other portion of the bow an 7 important aspect of bow design? 8 A. I would broadly answer that by saying: 9 You do not want interference between components 10 on -- on -- on the cam and the cable. For example, 11 that certainly -- detrimental when such contact or 12 interference occurs. So I think -- I think, 13 generally, it's important to avoid that kind of 14 interference or contact. There may be exceptions to 15 that, but certainly in the patent, that's -- that's 16 a consideration. 17 Q. So following up on that, then, how does 18 the cam stopping just before the capstan contacts 19 the power cable improve the design of the bow? 20 A. The -- the -- so not having interference 21 between mechanical elements. For example, between a 22 terminal and a power cable or between a capstan and 23 a power cable, that, generally, is a design goal. 24 You do not want interference between components. 25 You don't want -- as you draw the bow, you don't

Page 13 1 want two components to interfere with each other. 2 That will create an impact, wear -- if it's the 3 cable that's being contacted, it will create 4 potential wear on the cable. So avoiding that kind 5 of contact or interference is a- -- an important 6 consideration in design of the bow. 7 Q. Okay. So is it fair to say that having a 8 capstan interact with the power cable or -- have- -- 9 having really any physical components on the bow 10 make additional physical contacts with the cable is 11 a potential source of wear, and is something to be 12 avoided where possible? 13 A. Yeah. I don't -- I don't know. I -- 14 there may be cases where that's not true, but I -- I 15 think that is a true statement for the designs that 16 we're looking at in these patents, that avoiding 17 interference is a desirable design goal. I can't 18 think of a case where you would want to have 19 interference, unless there was some intentional stop 20 built in, which is also possible. And in that case, 21 it would be designed to accommodate that contact or 22 interference. 23 Q. Okay. If you would, can you, please, turn 24 to Paragraph 65 of Exhibit 2018. 25 A. Okay. I'm there.	Page 15 1 power cable, of course, runs to the cam on the other 2 side of the bow, and all of that, I think, could be 3 considered the straight portion, but I think the 4 claim simply require that there is a straight 5 portion of the power cable. 6 Q. And is -- is there a boundary between the 7 straight portion that you just described, and what 8 the patent calls the capstan portion? 9 A. Again, I don't think it's necessary to 10 define a precise location that is a boundary. I 11 think the claims require a straight portion. But, 12 generally, when the cable begins to contact a cam or 13 another member that changes it from being a straight 14 line, then it would -- clearly would not be a 15 straight portion anymore. So any -- any place a 16 bend would occur, would be the end of the straight 17 portion. 18 Q. And can you describe what, then, would be 19 the beginning of the capstan portion? 20 A. And, again, I don't believe it's 21 necessary. From my recollection -- I'm not looking 22 at the claims of the patent at the moment -- but I 23 don't think it's necessary to define a precise 24 beginning or end of the capstan portion, what's 25 highlighted in yellow. The claims require that
Page 14 1 Q. Okay. Thank you. 2 And looking at the photo shown in 3 Paragraph 65, I -- I note that you've made some 4 highlights here in red and in yellow and in purple, 5 and for the portion that you've highlighted in red, 6 are you referring to that as the elongate, straight 7 portion of the power cable? 8 (Witness is reviewing document.) 9 A. In -- in Paragraph 65, I don't immediately 10 see the term "elongate," but in 26, which is 11 highlighted in red, the patent refers to as -- I 12 think the straight portion of the power cable. 13 BY MR. SCHMIDT: 14 Q. And can you describe where that straight 15 portion, in your opinion, starts and ends? 16 A. I don't know that it's necessary to define 17 the full extent of what would be a straight portion 18 of the power cable, but when it beg- -- when the 19 cable begins to wrap the cam, for example, or the 20 capstan, then, it's no longer straight. So that 21 wouldn't be part of the straight portion. 22 Here, there is some light contact, in some 23 cases, between the adjustable module and the cable, 24 which can cause it to take a shape, other than a 25 perfectly straight line. And, then, the -- the	Page 16 1 there is a portion of the cable that's in contact 2 with the capstan. And I've, generally, highlighted 3 that in yellow. 4 Q. Okay. So, I guess, is it your opinion 5 that there is no clear beginning and end for the 6 capstan portion? 7 A. I think it may change, depending on the -- 8 for example, the position of the adjustable module. 9 So in the figure in Paragraph 65 or the 10 photograph -- I think this is a photograph from the 11 Inside Archery article -- we can see all the 12 adjustment values. So that -- that module was 13 adjusted to a mid-draw length of, I think, 24 in 14 this picture. If it were some other adjustment 15 point, the cable may be deflected a little bit 16 further, de- -- just depending on the specifics of a 17 implementation, but I don't think that affects the 18 fact that there is a capstan portion in contact with 19 the capstan. 20 Q. Is it correct, then, to say that the 21 capstan portion of the power cable is just that 22 portion of the power cable that is in contact with 23 the capstan itself, and not any other additional 24 portion of the cable that isn't in contact with the 25 capstan?

Page 17 1 A. I think that's correct. I would have to 2 go back and review the patent to see if there's any 3 occasional insight offered in the patent. But, 4 clearly, there is a portion that's in contact that 5 wraps the capstan and is in contact with it. And 6 that certainly would qualify as the portion that -- 7 that wraps the capstan. 8 Q. And just turning now to the Terminal 9 portion, same questions: Can you describe what, in 10 your opinion, is the beginning and end of the 11 terminal portion of that power cable? 12 A. I can. So what I would say is that, 13 clearly, anything that is in contact with that 14 terminal is part of the portion that's looped around 15 the terminal. I think we could debate whether it 16 extends as far as that magenta highlighting 17 indicates. It clearly is the part that's contacting 18 the terminal. I don't think there's any real need 19 to debate exactly where it terminates, but there's 20 clearly a part that contacts that terminal, and that 21 meets, I think, the -- the claim limitations and the 22 requirements of the patent. 23 Q. So is it -- is it your opinion that the 24 terminal portion is at least the portion in contact 25 with the terminal, and it may or may not be some	Page 19 1 (Witness is reviewing document.) 2 A. Okay. So I'm reading here in Column 4, 3 starting at Line 25 -- and I'll read it into the 4 record -- The first power cable 24 extends around 5 the Capstan 30 and attaches to the Terminal Post 32. 6 The Power Cable 24 comprises a Capstan Portion 34 -- 7 and so I'm looking -- this is really for the other 8 power cable, but the -- I think the -- every- -- 9 everything we're talking about will be the same; so 10 I think this is a useful description. I'm sorry to 11 interrupt my own reading. 12 The power cable -- I'm starting again at 13 the beginning of the sentence -- The Power Cable 24 14 comprises a capstan portion in contact with the 15 Capstan 30. So the part that's actually in contact, 16 that -- that may change, depending on the 17 particulars of the design, but the part that's in 18 contact with the capstan is called the Capstan 19 Portion 34, and a Terminal Portion 20 -- I'm 20 sorry -- a Terminal Portion 36 -- so this is what 21 you were just asking me about -- in contact with the 22 Terminal 32. 23 So reading that description, I would say 24 that what I've highlighted in magenta probably 25 extends beyond at least what that particular
Page 18 1 additional portion beyond that? 2 A. Well, that's a -- that's a good question. 3 I think probably we should turn to the patent maybe 4 for some clarity on that. So I'm going -- going to 5 pull up probably the '898 [sic] -- 6 Q. Sure. 7 A. -- patent. And we'll see -- 8 Q. And I believe that's -- yeah, I believe 9 it's '989. 10 A. '989, sorry. 11 Q. See if I can drop that one in the chat at 12 least. 13 So I've placed into the chat Exhibit 1001, 14 which is a copy of the '989 patent. 15 (Deposition Exhibit No. 1001 was marked 16 for identification.) 17 A. I don't think there's any need for me to 18 download that, unless you would prefer that I look 19 at that copy. I have the hard copy -- 20 BY MR. SCHMIDT: 21 Q. That's fine. 22 A. -- in front of me. Okay. 23 Q. Yeah, whatever your preference is, that's 24 primarily for the court reporter. 25 A. Okay. Fair enough.	Page 20 1 sentence tells us is the terminal portion. I don't 2 think it's been an issue or is an issue in the case. 3 I think it's just required that there is such a 4 terminal portion, but probably thinking about it 5 again, I probably would not have put the magenta 6 highlighting as far as I did. 7 Let me look at the actual terminal, 8 though, on the bow. It may be a little clearer 9 here. Since we're looking at a photograph, yeah, 10 some terminals are teardrop-shaped, but this one 11 seems to be a circ- -- a circle, and so I would say 12 it's just -- by that paragraph or sentence, at 13 least, it's just the part that's in contact with the 14 terminal. 15 BY MR. SCHMIDT: 16 Q. Okay. And, Dr. Reinholtz, can you, 17 please, turn to Paragraph 67 of our declaration, 18 which is Exhibit 2018. 19 A. Sure. 20 (Discussion off the record.) 21 A. I'm sorry, but could you tell me again 22 what paragraph? 23 BY MR. SCHMIDT: 24 Q. Sure. 25 Could you, please, turn to Paragraph 67.

Page 21 1 A. Okay. Mr. Colvin is managing paper for 2 me. Working from the paper copy does create some -- 3 some shuffle -- un- -- unnecessary shuffling maybe, 4 but it's nice to look at a hard copy. 5 Q. No problem at all. 6 A. Okay. I'm on Paragraph 67. Thank you for 7 your patience. 8 Q. Thank you. 9 I'm looking at the third sentence there, 10 which is down at the bottom of page 54, and it says, 11 A POSITA would have understood that the dashed red 12 line along the elongate straight portion of the 13 power cable defines a plane parallel to the viewing 14 access, e.g., extending into and out of the page. 15 And my question is: How -- how, in your 16 opinion, does an elongate straight portion define a 17 plane? 18 (Witness is reviewing document.) 19 A. Well, a person of ordinary skill in the 20 art would understand that the power cable -- the 21 elongate portion of the power cable defines -- 22 there -- there could be a number of planes that 23 include a straight line, such as the straight 24 portion of the power cable, but the -- we're looking 25 at the side view of this bow. And so there is a	Page 23 1 is the correct plane, and not any number of other 2 planes that could be defined by a line? 3 A. I think it'll -- if you'll turn to 4 Column 2 of the '989 patent, it discusses this 5 point. And it says -- starting at Line 16 -- 6 starting at Line 16, it says -- no, I'm sorry, 7 starts at Line 14, not 16. 8 Q. Okay. 9 A. It says, In some embodiments in the brace 10 condition, the elongate straight portion of the 11 power cable defines a plane wherein said first 12 axle -- so the first axle is the axis that I was 13 talking about that's the axis of the -- of the axis 14 of rotation of the cam -- and said terminal are 15 located on opposite sides of said plane. 16 So that tells us that there's a plane the 17 axle defines the -- the viewing angle -- clearly, 18 we're looking at a plane or image in the patent, and 19 the plane is defined with the straight portion of -- 20 the straight elongate portion and the direction of 21 that first axle or the axis along that first axle. 22 There are probably other places this is discussed, 23 but I think that is sufficient. 24 Q. The -- using that description that you 25 just referred to in Column 2, Lines 14 to 17, could
Page 22 1 plane of the bow. 2 The -- the centers of rotation of the two 3 cams and in the absence of length. So in a -- in a 4 theoretical setting, at least, the axes point out of 5 the page or into the page, perpendicular to the 6 page, and that is the plane that we're talking about 7 that the -- the straight section of the power cable 8 lies in. 9 So I think a person of un- -- skill in the 10 art would understand that the power cable does 11 define a plane that's parallel to the viewing axis 12 here. 13 BY MR. SCHMIDT: 14 Q. And is there anything in the '989 patent, 15 in this specification, that would indicate to a 16 POSITA that that is the specific plane that's being 17 referred to and not another plane? 18 A. Well, let me, again, look for the -- for 19 the patent to see if there's anything -- I think 20 you're asking me explicitly: Is there anything 21 explicit in the patent that describes that plane? 22 Q. That's the -- that's correct. 23 And may -- maybe let me rephrase my 24 question: Is there anything in the '989 patent that 25 indicates that the plane that you've just described	Page 24 1 there be other planes, for example, not at a -- a 2 90-degree angle to the page, but at some other angle 3 to the page, in which it would still be correct that 4 the straight portion would define a plane, wherein 5 the first axle and the terminal are on opposite 6 sides of that plane? Is that still possible? 7 A. I -- I think it would be possible to 8 imagine some abstract bow that would- -- wouldn't be 9 probably practical. A person of skill in the art 10 would understand this to define the plane to be the 11 plane perpendicular to the page of the paper. I 12 don't really think there's any other possibility 13 here. 14 Q. So is -- is it your opinion that other 15 planes that are not a 90-degree angle to the page, 16 say, a 60-degree angle to the page in which it's 17 still true that the first axle in the terminal are 18 on opposite sides of that plane, that that's just 19 not contemplated by the '989 patent? 20 A. Yeah, I have not seen any such design. I 21 think a person of skill in the art would understand 22 this plane to be perpendicular to the page -- the 23 plane of the page that we're looking at. If there 24 are other examples, I can't recall having seen any 25 of those. I don't know that it's restricted -- the

Page 25 1 patent is restricted necessarily to that, but the 2 embodiments that we see, to me, clearly show that. 3 Q. Dr. Reinholtz, can you turn to 4 Paragraph 69 of Exhibit 2018, please. 5 A. Okay. I'm on Paragraph 69. 6 Q. And in the image shown in Paragraph 69, 7 which is on the top of page 57, do you see where the 8 power cable is exiting the capstan? And before it 9 touches the cam track, would you agree that that is 10 a straight portion of the power cable; that span 11 between the capstan and the cam track? 12 A. You said at the top of the page, but just 13 to clarify the record, I think -- I would call that 14 photograph being in the center of the page. 15 Q. Yeah. You're right. 16 A. Yeah. I -- I haven't considered that. I 17 think it's possible there could be a portion in 18 there that's generally straight. I -- I -- I just 19 haven't done that analysis. 20 Q. Does that -- in -- in your opinion, would 21 that portion, spanning from where it exits the 22 capstan and before it touches the cam track, would 23 that power cable form a straight line? 24 A. I certainly think it's possible that there 25 is a straight line -- a small straight line portion	Page 27 1 this -- this design, I believe, was so novel, that 2 it was important to the designer -- the manufacturer 3 to put -- and it's a little -- little bit hard to 4 see in the picture -- but if you look at the -- the 5 capstan, it extends much farther than it really 6 needs to. So the portion you're asking about really 7 is just to prevent somebody from misthreaded the 8 cable on this bow. There's actually an arrow on 9 the -- on the capstan that shows how the threading 10 goes. 11 And so that's not a portion of the capstan 12 that's used, but I don't really think that's an 13 issue. Even if that portion were used, clearly, 14 part of the capstan is closer than any part of the 15 terminal. I think that's the key dimension that 16 we're talking about. 17 Q. And is there anything in the '989 patent 18 that tells you that you should measure from that 19 location on the capstan that you've chosen there 20 versus another location on the capstan, say, the 21 additional curved portion that you mentioned there 22 that, you know, is down below the terminal? Is 23 there any reason why the measurement needs to be 24 taken from the location that you chose in view of 25 the '989 patent?
Page 26 1 of the power cable in that location. 2 Q. And in this image shown in the middle of 3 page 57, there are two measurements that are taken. 4 There is a -- there's a red arrow spanning from the 5 terminal to the vertical red line -- or, mostly, 6 vertical red line on the -- the right side, and 7 there's a -- another red arrow that spans from a 8 point on the capstan to that same red line. 9 And is there any reason why that arrow -- 10 that top arrow that's -- purports to measure from 11 the capstan to the vertical red line, why that 12 measurement can't be taken from another portion on 13 the capstan? In other words, could you measure the 14 distance from the center of mass of the capstan to 15 that red line? And would that still be the distance 16 from the capstan to the vertical red line? 17 A. Yeah, again, just to clarify, I'm not 18 making measurements here; so there's no physical -- 19 there's no numerical value that I've associated 20 with, as I'm simply showing that the terminal is 21 further away than the portions of the capstan, which 22 is, I think, what's required in the claim. 23 The capstan actually -- interesting 24 here -- the capstan actually bends around for -- 25 and, again, I'll go to the physical bow --	Page 28 1 A. I think this is really a matter of how a 2 person of skill in the art would read this claim of 3 the patent. And so what the claim -- I'm looking, 4 for example, at Claim 3 of the '989 patent -- and I 5 think it kind of generally gets to your question -- 6 The archery bow of Claim 1 wherein the brace -- in 7 the brace condition, which is what we're looking at 8 before the bow is drawn -- the power cable -- I'm 9 sorry -- wherein in the -- yeah, I -- I was reading 10 from Claim 2; so let me start this over again. 11 Claim 3 says, The archery bow of Claim 1, 12 wherein a distance bet- -- a distance between a 13 first axle and a terminal is greater than a distance 14 between the first axle and the cam track -- oops, 15 probably that's not the claim that I wanted to be 16 reading from. 17 I can't find the -- the claim. I think 18 this is covered in one of the claims, and I could 19 spend more time, but I think, generally, what we're 20 talking about here is that: Is there a portion of 21 the capstan that's closer than a -- the -- the 22 terminal? And there clearly is, and that, I think, 23 meets the limitations of the claim. We could 24 measure other distances, but those are not 25 necessary. They're superfluous to interpreting the

Page 29 1 claims of the patent. 2 Q. Okay. So if -- if I understand correctly, 3 your -- your opinion is that you could measure from 4 other locations in the capstan, but you were only 5 concerned with whether there is a location on the 6 capstan that is closer than the distance to the 7 terminal; is that fair? 8 A. Yeah. I -- I would say it this way: That 9 I am looking at the claims -- the requirements of 10 the claims of the patent to see if these -- these 11 are embodied in the images and the devices that 12 are -- are at issue in this case. So the -- in this 13 case, we're looking at the first embodiment and the 14 Mission-Menace-type bow that mirrors very closely 15 the -- the first embodiment -- 16 (Reporter clarification.) 17 THE COURT REPORTER: I'm sorry, hold on. 18 You cut out. 19 "That mirrors very closely to the" ... 20 A. The first embodiment that's shown in the 21 '989 patent. 22 BY MR. SCHMIDT: 23 Q. And when you say "the first embodiment," 24 what -- what are you referring to in the '989 25 patent?	Page 31 1 that -- that you're aware of that indicates that 2 that measurement that's referred to in the claims 3 needs to be taken from that location on the capstan? 4 In other words, the closest location on the capstan 5 to the vertical red line? 6 A. My understanding of -- in -- in reading a 7 patent is -- the -- the question really is: Is it 8 true that the capstan -- there could be portions of 9 the capstan that are -- that are further away -- but 10 the question really is: Is any part of the capstan 11 closer than the terminal? Which is -- it's clearly 12 true. And that is the way I understand you 13 interpret the claims of the patent. 14 Q. And, Dr. Reinholtz, can you, please, turn 15 to Paragraph 111 in your declaration, which is 16 Exhibit 2018. 17 A. I'll try. And Matt is reshuffling the 18 deck for me. 19 Q. That's right. We will assign all blame to 20 Matt for any delays. 21 A. No, it's all my fault. I'm getting it all 22 mixed up. 23 Okay. So we're looking at Paragraph 112? 24 Q. 111, please. 25 A. Okay. Yes, okay. I'm on Paragraph 111.
Page 30 1 A. The '989 patent shows a first embodiment 2 that corresponds to Figures 1, 2, and 3. And that 3 embodiment is almost identical, except for some -- 4 some markings that are on the physical device to the 5 Mission Menace bow. 6 And, then, starting with Figure 4, there 7 is a second embodiment that is very close to, if not 8 identical to the geometry of the -- the other bow 9 that we have here with us. This is the -- the 10 Monster bow, and we can look at the cam geometry on 11 this and see it matches identically or very -- very 12 close to being identically to the second embodiment 13 of the patent. 14 Q. And so is it your opinion, then, that 15 because this photograph in Paragraph 67 is very 16 similar to the Monster and Menace bows, that that's 17 what's telling you to take the measurement from that 18 location on the capstan? 19 A. No, I wouldn't say it that way. The 20 claims require certain things to be in particular 21 locations, some things closer than others, and I'm 22 just testing or checking to see whether that's true. 23 And it's true in the patent figure, and it's true in 24 the devices. 25 Q. But is -- and -- and there's nothing else	Page 32 1 Q. And, generally speaking, can you describe 2 the purpose of power cables in a compound bow? 3 A. The term "power cable" is pretty 4 descriptive. So these bows have two power cables, 5 and they serve the purpose of creating a tensile 6 force or -- or, in other words, bending the limbs of 7 the bow to store energy. That's the -- the primary 8 way energy is stored in the bow, through the power 9 cable. So the "power cable" is a descriptive 10 terminology for the cables that cause the limbs to 11 deflect and store energy. 12 Q. And if we could, for a moment, turn to the 13 Islas reference, which is Exhibit 1005. 14 (Deposition Exhibit No. 1005 was marked 15 for identification.) 16 BY MR. SCHMIDT: 17 Q. See if you have that available to you. 18 A. I do. You said -- you said "Islas," and I 19 think I've been saying "Islas." 20 Q. Okay. I can see -- 21 A. I don't know if it's correct, but I may 22 say "Islas," so -- just so Kara is not confused, I 23 think we're talking about the same thing. 24 Q. And I'll switch to that pronunciation as 25 well, because I genuinely have no idea.

Page 33 1 THE COURT REPORTER: Can I get a spelling 2 on that? 3 MR. SCHMIDT: It's I-S-L-A-S. 4 THE COURT REPORTER: Thank you. 5 A. Okay. I'm with you. I have the reference 6 in front of me. 7 BY MR. SCHMIDT: 8 Q. So in the Islas reference, is the purpose 9 of the two power cables the same? In other words, 10 do the two different power cables depicted in Islas 11 have different purposes, or do they have the same 12 purpose? 13 MR. COLVIN: Objection. Form. 14 THE COURT REPORTER: I'm sorry, was there 15 an objection? 16 MR. COLVIN: Yeah, I objected to the form. 17 A. They -- they share a common purpose of 18 causing the limb to deflect -- or the limbs of the 19 bow to deflect to store energy. One -- one of these 20 cable -- Cable 30 -- I'm looking at now Figure 1 of 21 Islas -- 31 is a cable that as the bow is drawn, 31 22 unwraps from its Cam 60. And as the bow is drawn, 23 Cable 30 wraps to take up slack, and the wrap- -- 24 the wrapping always must be greater than the 25 unwrapping or else the -- the cable goes slack, and	Page 35 1 cam? 2 MR. COLVIN: Objection to form. 3 A. Yeah, I don't think Islas restricted to 4 that case. Islas actually refers back to an earlier 5 quad cam patent, and I think this configuration 6 could, for example, be used in a quad cam bow 7 configuration. So I -- I don't think it necessarily 8 is required to be a mirror image. This figure, I 9 don't think it could be. But I think the patent 10 itself doesn't -- doesn't make clear or maybe leaves 11 open the possibility that it could go to the other 12 cam. 13 BY MR. SCHMIDT: 14 Q. So is it your opinion that Islas -- strike 15 that. 16 So is it your opinion, then, that Islas 17 could have a mirror image configuration on the 18 opposing cam, but you just don't know? 19 A. I so, again -- again, we may have a 20 different -- I'm still saying Islas. And you're now 21 saying Islas. 22 Q. Sorry. 23 A. So I'm -- I'm going to continue to say 24 "Islas," I think, or I'll try to, to be consistent. 25 I don't think I -- I don't think Islas is
Page 34 1 the bow will explode, and it's very dangerous for 2 that to happen. 3 So I -- I think they share a common 4 purpose of providing the deflection and coordinating 5 motion of the cam. 6 Maybe you have a more specific question. 7 That was a pretty broad -- pretty broad question. 8 BY MR. SCHMIDT: 9 Q. Is it correct that the two power cables 10 that you just referred to, 30 and 31, in the Islas 11 reference, are effectively the same, but oriented in 12 mirror image configurations to each other? 13 MR. COLVIN: Objection to form. 14 A. Yeah, I -- yeah, I'm not sure what you 15 mean by that, or -- no, I just don't know what you 16 mean by that. 17 BY MR. SCHMIDT: 18 Q. Sure. 19 So if you look at Cable 31, which is shown 20 on Figure 1, if you were to go to the opposite cam 21 on the other side of the bow, would it have the same 22 configuration as Cable 30 that is shown in Figure 1? 23 In other words, are we seeing sort of -- in this 24 image, we are seeing Cable 30, and in Cable 31, we 25 are seeing what Cable 30 will look like on the other	Page 36 1 clear on whether he's contemplated a mirror image 2 configuration. I'd have to go back and review the 3 whole patent. But of -- my recollection, just 4 sitting here, is that he refers to the quad cam 5 patent as an example of how this could be 6 implemented, in which case Table 31 would not go to 7 a cam on the other limb. But I think he has some 8 generalized statement -- let me see if I can find 9 it -- about how it could be applied to other 10 configurations. And what he means by that, I don't 11 think he's clear. 12 (Witness is reviewing document.) 13 A. Yeah, I know in Paragraph 24, Islas talks 14 about -- for example, about two-thirds of the way 15 down -- Islas talks about, That is the pylon 16 position, the inboard cam member, so that the Power 17 Cables 30 and 31 pull the outboard cam at a 18 relatively steep angle relative to the power limb, 19 and pull against a point that is fixed in relation 20 to the bow riser, and not against the other bow 21 limb. 22 So that is clearly a description of the 23 quad-cam-type design. 24 BY MR. SCHMIDT: 25 Q. And could you take a look at Paragraph 26

Page 37 1 in Islas, and would that be a description of mirror 2 image cams? 3 A. Right. I think that -- it is. You're 4 correct -- but I think that's a different -- 5 answering a different question than the one you 6 asked about, the pow- -- what the power cables go 7 to, and how they mirror. 8 So the cams on the limbs would look like 9 mirror images in the preferred embodiment. That's 10 what he's telling us there. I don't think that 11 clarifies the -- whether the -- how -- how the 12 cables are necessarily routed, whether there's a 13 requirement there. 14 Q. So is it at least possible, then, that the 15 power cables could be routed in mirror image 16 configurations as well, or is your opinion just that 17 you don't know? 18 A. I -- I think they can be routed in mirror 19 image configuration, but I don't think Power 20 Cable 31 goes in a mirror to the other -- to the 21 other cam on the limb. It goes to a cam -- or at 22 least -- at least what Islas appears to contemplate, 23 "Is it going to a cam that's on the riser?" I still 24 think if you took snapshots of the two ends, they 25 would look like mirror images. But it's -- really,	Page 39 1 Q. All right. And in your opinion, would the 2 power cables described in the Darlington reference 3 ever wear out? 4 A. That is something I have not considered, 5 but with infinite use, everything has the 6 possibility of wearing out. So I certainly think 7 it's possible. In practical use, I do not know if 8 that's an issue. 9 Q. And -- and in your experience with 10 compound bows, do power cables eventually need to be 11 replaced, generally speaking? 12 A. Yes, they can -- they can become frayed 13 and worn from use. 14 Q. And what are some of the sources of that 15 wear on the power cables, in your opinion? 16 A. Broadly, wear can be simply flexing of the 17 cable, especially, around a tight radius, can cause 18 fibers to -- to break or elongate permanently. So 19 wear could be a physical failure of an -- of fiber 20 in a cable, for example, or it could be an 21 elongation of a -- a fiber or a, you know, surface 22 treatment of the cable, but other sources -- common 23 sources of wear are where -- where -- when the cable 24 is in rubbing, sliding contact -- rubbing contact. 25 Those are really the same thing -- with other
Page 38 1 I -- I thought you were asking about where the 2 cables went. 3 And so they -- Cable 31 does not appear to 4 go to the other cam that it -- so there could be 5 four cams here. If we talk about a bow with two 6 cams, it does not appear to go to a -- the other cam 7 that is on the flexible limb that stores energy. I 8 don't think it could go to that the -- the way the 9 drawings are shown. 10 MR. SCHMIDT: And, Dr. Reinholtz, we've 11 been going for about an hour, happy to take a break 12 or happy to keep going. It's up to you. 13 MR. COLVIN: Yeah, let's take a break. 14 THE WITNESS: Yeah, I think a break's a 15 good idea. 16 MR. SCHMIDT: Sounds good. 17 10 minutes? 18 THE WITNESS: Sounds good. 19 (A recess was taken from 10:55 a.m. to 20 11:05 a.m.) 21 BY MR. SCHMIDT: 22 Q. Dr. Reinholtz, can you, please, turn to 23 Paragraph 116 of your declaration, which is 24 Exhibit 2018. 25 A. Okay. I'm there.	Page 40 1 elements in the bow or the cam of the bow or the 2 arrow, for example, those -- all those things can 3 cause wear on the cable and degrade its life. 4 Q. So is one source of degradation of the 5 cables on a compound bow friction, then, from cables 6 coming into contact with solid components on the 7 bow, such as capstans or cam tracks? 8 A. It can be. Cert- -- certainly, it's an 9 issue, yes. And so if the cable is in pure wrapping 10 contact and there's no sliding motion or very little 11 sliding motion, then wear is, therefore, minimized, 12 and that's in very important consideration. 13 Q. And can you turn to Paragraph 117 now, 14 please. 15 A. Okay. I'm there. 16 Q. And is it your opinion that cam lean can 17 cause power cables to be imperfectly aligned in a 18 cam track? 19 (Witness is reviewing document.) 20 A. I'm a little confused. You asked -- and I 21 thought -- to -- to look at Paragraph 117; is that 22 correct? 23 BY MR. SCHMIDT: 24 Q. That's correct. 25 And my question is just: Whether -- well,

Page 41 1 my first question is: Whether cam lean, which I 2 believe is a term you're familiar with, is -- is 3 something that causes power cables to be imperfectly 4 aligned in a cam track? 5 A. I think the source of my confusion is I -- 6 I don't -- I discuss cam lean in my declaration, but 7 I don't see it discussed in Paragraph 117; so I'm 8 not clear why you're referring me to that. 9 Q. Sure. So -- so maybe we -- it's better to 10 refer to Paragraph 118. I believe your -- let me 11 just double-check that. 12 Apologies. Please, look at Paragraph 114, 13 and there is some discussion there of cam lean. 14 And I'll just repeat the -- the question, 15 which is: Does cam lean cause a power cable to be 16 imperfectly aligned in a cam track? 17 A. It certainly can. There may be ways to 18 mitigate that. I have not seen any discussion of 19 that, and there are multiple considerations in 20 designing these devices. But if the cam lean and 21 the cable, therefore, does not come in to the center 22 of the track, if it rubs up against the edges -- 23 the -- the -- the tracks in the cam have straight 24 sides, and then they have a radius at the bottom, 25 and if the cam comes in contact with the -- I'm --	Page 43 1 accelerate the wear of the cable. 2 Every bow potentially has some lean -- or 3 does have some lean, and as long as it's 4 well-controlled and not significant, it -- it can 5 be -- the cables can have long life. But as that 6 misalignment increases or the cam lean increases, 7 cable life is reduced, and could be -- could be very 8 short in some cases. 9 BY MR. SCHMIDT: 10 Q. Do you have any quantification of the 11 amount of cam lean that is considered unacceptable 12 in a bow design? 13 A. Well, we -- the easy answer there is: If 14 the lean takes the track out of alignment with the 15 cable -- in other words, the diameter of the cable, 16 which is probably on the order of a 10th of an inch 17 or something like that, maybe smaller -- then, if 18 the -- so I don't know that it's necessary. I mean, 19 we can see, I think, in the proposed combination the 20 reasons for increased cam lean, and that is not a 21 good thing. No matter -- no matter what the 22 magnitude of it is, it's going to make the case 23 worse. 24 But I do think there's some quantification 25 that if the lean is so significant that the cable
Page 42 1 cab- -- I'm sorry, not the cam -- if the cable, as 2 it's attempting to enter the track, comes in contact 3 with the side of the track, then there's rubbing, 4 and the friction there and the rubbing will 5 accelerate the wear of the cable. So in that case, 6 cam lean or cam misalignment definitely can 7 contribute to accelerated cable wear. 8 Q. And referring now back to Paragraph 118, 9 is it your opinion that cable guards will 10 necessarily pull cables out of alignment with the 11 cam surface, and that as a result, power cables are 12 almost never in perfect alignment with the cam 13 tracks in which there -- in which they lie? 14 MR. COLVIN: Objection to form. 15 A. Okay. Perfection is impossible to 16 achieve. So cam lean is an important design 17 consideration. Significant lean, which we would 18 certainly see in the proposed combination with 19 Darlington and Islas. It's going to -- 20 significantly to cam lean -- 21 (Reporter clarification.) 22 A. Yes, that combination that's proposed by 23 Mr. Lange will certainly contribute significantly to 24 increased cam lean, and that will increase the 25 misalignment and cause the cable to -- to rub and	Page 44 1 has trouble entering the track when it's not already 2 in the track, then that's -- could -- could be a 3 catastrophic -- not a -- not a wear issue, but a 4 catastrophic failure where the cable doesn't enter 5 the track. So that's really a second issue with cam 6 lean. If it gets so severe that the cable does not 7 enter the track, then -- then it's a major problem 8 in a single draw of the bow. 9 Q. And in your opinion, can you calculate the 10 amount of cam lean just by looking at drawings, or 11 is that something that you would need to build and 12 test? 13 A. If the drawings were sufficiently 14 detailed, I think it would be possible to provide 15 mechanical calculations to estimate the cam lean. 16 It's also possible to take a physical bow that's 17 been fabricated and test it to measure cam lean. So 18 I think both methods are viable, potentially. 19 Q. And what about in the case of patent 20 drawings, which are generally not, you know, CAD 21 files drawn to scale. 22 Do patent drawings generally have enough 23 information to allow to you calculate cam lean? 24 A. I would -- I -- there are some exceptions 25 probably to this. I think we could quantify --

Page 45 1 well, let me start in a different way. 2 I think -- I think maybe there are some 3 drawings in patents -- certain patents in -- broadly 4 speaking, that could allow calculation to be made 5 that would actually give a numerical estimate of cam 6 lean. 7 In the patents we're looking at in this 8 case, I think it would be difficult to quantify to, 9 say, the lean is 1 degree or 5 degrees. But I think 10 what we can say is that, relatively, the amount of 11 lean will be increased, and I think it's possible to 12 quantify moment arm, and given other things being 13 equal, what the lean would be relative to from 14 one -- one situation of where a cable attaches, for 15 example, to another. But, generally, it would be 16 hard to quantify precisely what those values would 17 be. 18 Q. And, Dr. Reinholtz, can you, please, turn 19 to Paragraph 121 of your declaration. 20 A. Yes, I'm there. 21 Q. And in Paragraph 121, in the third 22 sentence, you state that you measured both the 23 distance between the cam centers and the maximum 24 change in distance between the takeout -- sorry -- 25 take-up and let-out power cables.	Page 47 1 So, for example, in Paragraph 121, you 2 make the statement that you, quote, measured both 3 the distance between the cam centers and the maximum 4 change in distance between the take-up and let-out 5 power cables, and then you go on to say that, Based 6 on those measurements, there is a maximum change in 7 orientation of the power cable that is less than 8 3 degrees. And, generally speaking, there are a 9 number of references throughout Paragraphs 121 10 through 124 where you refer to "calculations." 11 And my question is: Were all of those 12 calculations based on measurements taken of the 13 drawings themselves? 14 (Witness is reviewing document.) 15 A. The -- yeah, I -- I do talk about 16 calculating an angle, but I think the conclusions I 17 reach -- there are very few calculations here. It's 18 some measurements of what Mr. Lange proposes and 19 what Darlington shows, but my conclusions aren't 20 based on those calculations. 21 What we're really looking at here is a 22 velocity difference. When two -- when two 23 components contact -- first contact each other, like 24 a cable and a cam, they can be -- they could -- they 25 could -- it's possible for them to come into contact
Page 46 1 And, generally speaking, for 2 Paragraphs 121 to 124, do all of your calculations 3 assume that the figures in the proposed combination 4 of Islas and Darlington are drawn to scale? 5 (Witness is reviewing document.) 6 A. The -- my -- my calculations here for -- 7 my -- my observations are specifically based on the 8 drawings provided by Mr. Lange, and so I have 9 created vectors that are oriented, for example, 10 based on those particular drawings. That's what was 11 pre- -- presented to me by your expert. But if the 12 dimensions change a little bit, the same problems 13 and concerns will still be true. They may be -- 14 they may be amplified or reduced somewhat, depending 15 on particular dimensions, but I -- I don't think -- 16 my opinions certainly aren't based on a particular 17 set of dimensions here. 18 BY MR. SCHMIDT: 19 Q. So is it -- are -- are you saying that 20 your calculations were not performed based on taking 21 measurements of the drawings themselves? 22 A. Could you refer me to the calculations 23 you're asking about? 24 Q. Sure. It's generally the calculations 25 performed in Paragraphs 121 through 124.	Page 48 1 in a smooth engagement with max velocities. 2 Clearly, the proposed combination presented by 3 Mr. Lange, no matter what the dimensions are, is 4 going to have a velocity discontinuity, which means 5 the Power Cable 30 impacts. And when I say 6 "impact," I mean it -- it strikes the end -- the -- 7 when it first strikes a portion of the cam, it 8 strikes it with a non-zero velocity -- relative 9 velocity in the normal direction, which is a huge 10 problem. It creates vibration, it affects the feel 11 of the bow, it creates cable wear. There are lots 12 of issues. And that isn't dependent on any 13 particular set of numbers. 14 BY MR. SCHMIDT: 15 Q. Let me -- let me try that question again. 16 The calculations that you described -- the 17 specific calculations that you described in 18 Paragraphs 121 through 124, were those made by 19 taking direct measurements from the drawings of the 20 combination of Islas and Darlington? 21 A. I think I only make one calculation. You 22 make it sound like I'm calculating quite a number of 23 things. I'm just showing that the base- -- so in 24 Paragraph 121, I say, Based on these measurements -- 25 so there, I did use specific measurements, and I

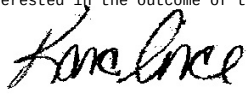
Page 49 1 confirmed them in a couple of different ways -- the 2 maximum change in orientation of Power Cable 30 will 3 be less than 3 degrees. 4 So that calculation is based on 5 Mr. Lange's proposed system. I don't think -- 6 anywhere else, I don't see where I performed a 7 calculation. You might point me to something, and I 8 would be happy to talk about it. 9 Q. So I'll -- I'll try to ask the question 10 one more time. 11 In that specific calculation that you just 12 referred to, was that based on measuring the 13 drawings directly in order to get those 14 measurements? 15 A. The specific number I got was based on 16 particular measurements that I took. The principles 17 and the conclusion would be the same if the figures 18 were -- were different. I think it's a general 19 principle of how the bows are laid out. We're going 20 to see numbers in this order of magnitude. So it's 21 just trying to tie some value to something that I 22 think is fairly obvious to a person of skill in the 23 art, just looking at the general configuration that 24 Mr. Lange has proposed. 25 Q. I -- I guess I'm trying to understand what	Page 51 1 calculations change? 2 A. I don't see where I performed any 3 calculations in Paragraph 122. What I'm referring 4 to there is velocity directions. And so if 5 dimensions change, they -- they may change slightly 6 with different variations of a design doc -- 7 Mr. Lange has presented, I think, to me, the same -- 8 he -- he describes it, I think, as two different 9 embodiments. I see it as just the same thing, exact 10 same configuration with just a different cam module. 11 I certainly considered that the conclusions don't 12 change. There are no calculations, I don't believe, 13 in Paragraph 122. It's a general analysis 14 demonstrating that there's a velocity discontinuity, 15 which I think will be unacceptable in a design. 16 Q. And is there any shape of Module B5 that 17 you can imagine that would avoid the problem of the 18 velocity discontinuity that you just described? 19 A. Well, I have not done that analysis or 20 attempted to. I'm basing my analysis on what 21 Mr. Lange presented. So he presented these -- what 22 he calls "two embodiments," but two -- two 23 variations with different cams, and I've analyzed 24 those, and there's definitely going to be this 25 velocity discontinuity, whether other possibilities
Page 50 1 you did there. 2 Is -- is it your opinion, then, that 3 you -- or is it -- are -- are you saying that you 4 did not take measurements of the drawings in order 5 to do those calculations? You just estimated? 6 A. No. Again, to be clear, there's one 7 calculation, an angle of 3 degrees. I think that's 8 the only calculation I performed. I did take 9 measurements to get that. If the geometry changed, 10 I considered that. That might be two and a half 11 degrees or three and a half degrees. It doesn't 12 affect the conclusion that I arrive at in this 13 section of my declaration. 14 Q. And do those measurements that you took of 15 the drawings and the calculations you performed 16 assume that the drawings are to scale? 17 A. The numbers I arrive at are based on the 18 scaled drawings. The conclusions aren't dependent 19 on that. 20 Q. So if the dimensions were to change, your 21 opinions would be the same? 22 A. Yes. 23 Q. And if Module B5 that is shown in 24 Paragraph 122 of your declaration were to be shaped 25 differently than what is shown there, would your	Page 52 1 may occur -- may be -- whether there may be other 2 possibilities. There -- the design has -- designing 3 a cam like this, there are a number of 4 considerations. And so if he would present a design 5 that he thought might avoid these problems, I'd be 6 happy to analyze it. There may be other issues 7 that, then, arise from a modified design. 8 But I did not attempt to create a design 9 that would be an improvement on Mr. Lange's -- 10 Mr. Lange's proposed concept or combination. 11 Q. Is it correct that you're assuming that 12 Mr. Lange's proposed combination shown in the 13 drawings in Paragraph 122 are to scale? 14 A. No. My conclusions are not based on the 15 scale of those figures. 16 Q. So in that case, changing the dimensions 17 of all of the components shown in Paragraph 122 of 18 your declaration would not change your conclusions; 19 is that correct? 20 A. I have not seen any evidence of a -- of a 21 design to which -- modified dimensions that would 22 change my conclusions. I haven't had the chance to 23 analyze anything like that. I -- I certainly see a 24 number of problems. This is not the only problem 25 that I point out. There are -- there are a variety

Page 53 1 of problems. And the design, again, there are a 2 number of considerations, and I have not attempted 3 to create a design that avoids this problem or any 4 of the other problems that are in the solution 5 proposed by Mr. Lange. But I can say that no matter 6 what the dimensions are, the geometry he proposes is 7 going to have these problems. 8 Q. And, Dr. Reinholtz, can you, please, turn 9 to Paragraph 129 of your declaration. 10 A. Okay. I'm on 129. 11 Q. And in Paragraph 129, is your calculation 12 of an increased moment arm based on the 13 measurements, again, of the drawings, as if they 14 were drawn to scale? 15 A. Can you -- I don't think I performed any 16 calculations in this part of the report. Again, my 17 opinions are generally based on the design proposed 18 by Mr. Lange. Scale might change magnitudes, but 19 the problems I describe are going to be common, no 20 matter what the dimensions he picks. 21 Q. So if you could look at the drawings in 22 Paragraph 129 of our declaration, there are two 23 side-by-side figures, and in the figure on the left, 24 you have a box that says, Moment arm causing lean, 25 and in the figure on the right, you have another box	Page 55 1 the figure on the right-hand side there? 2 A. It might be possible, but that introduces 3 other -- other -- again, there are -- there are 4 other considerations here, and so that will, 5 potentially, create other problems. So this is what 6 Mr. Lange has proposed and I've analyzed, if the -- 7 if the hole -- a different hole was chosen to put 8 the terminal -- or I'm sorry -- the -- the 9 Component 72, it could slightly change the moment 10 arm, but the same conclusion -- any of the holes 11 will -- will arrive at the same conclusion, that the 12 moment arm in the proposed combination is increased. 13 And I think moving to a different hole creates the 14 potential for other issues that haven't been 15 discussed or addressed in the analysis done by 16 Mr. Lange. 17 Q. Can you identify any of those additional 18 issues that would be created if you moved to the 19 other hole? 20 A. Well, you just said "the other hole." So 21 let's start with that. 22 What other hole are you talking about? 23 Q. So on the right-hand figure in 24 Paragraph 129, you've done a measurement here where 25 it says, There's a moment arm causing lean, and
Page 54 1 that says, Moment arm causing lean. And it is a 2 larger moment shown in the figure on the right. 3 And my question is: Is your calculation 4 of those two different moment arms that are depicted 5 in the figure in Paragraph 129 based on the drawings 6 being to scale? 7 A. Again, I did not do any calculations. I'm 8 simply showing that the design proposed by Mr. Lange 9 has an increased moment arm. It certainly may be 10 possible to move components around, but I still 11 think the same problem exists. And, again, I'm -- 12 I'm analyzing the design proposed by Mr. Lange. 13 It's not my job in -- in this case to try to develop 14 a design that avoids the problems that he's 15 introduced. 16 And so, yes, I can -- we can see 17 particular lengths of moment arm offset in these two 18 figures. They could change slightly with variations 19 in the design that haven't been proposed by the 20 petitioners in this case or Mr. Lange, but the 21 problems are going to be the same, even if the 22 dimensions change slightly. 23 Q. And could a POSITA use the additional 24 holes shown in the right-hand figure in 25 Paragraph 129 to decrease the moment arm shown in	Page 56 1 you'll notice that the orange capstan is located in 2 a Adjustment Hole No. 2, and it could be moved up 3 Adjustment Hole No. 3. So that's the additional 4 hole that I'm referring to there. 5 A. Okay. Again, you said I made a 6 measurement, and I didn't. It's a -- it's, like, a 7 comparative -- you could -- you could measure these, 8 but I didn't try to assign a numerical value to 9 them. As I think you can clearly see, there are -- 10 the -- the Component 72, the capstan -- or what he 11 refers to as the "capstan component," appears to be 12 in a middle hole. We could potentially move it to 13 one of the other two holes that are visible there. 14 In either case the moment arm is increased, compared 15 to the design by Darlington. 16 Moving to the hole that you just 17 suggested, increases the distance between the Power 18 Cable 30 and the cam, and probably results in a 19 greater -- I haven't done the analysis; so I'd need 20 to see the dem- -- I'd need to see the -- like, what 21 you're proposing and consider it more, but I think 22 it will lead to an ev- -- even greater increase in 23 an already problem -- already -- at least 24 detrimental and probably fatal to the design of this 25 velocity discontinuity that I've already pointed

1 out. 2 Q. So, in your opinion, moving that capstan 3 would create a greater velocity discontinuity? 4 That's -- that's the issue? 5 A. Well, you're asking me to analyze 6 something on the fly that hasn't been presented by 7 your expert. I think just from the -- my quick 8 thinking about it, I think it will increase the 9 velocity discontinuity, but I'd need to think about 10 that more. But all the problems that I've talked 11 about are present, no matter which of those holes 12 you pick. 13 Q. And these problems that you're talking 14 about here, are those problems based on assuming 15 that both of the drawings shown in Paragraph 129 are 16 to scale? And I -- you've said you have not taken 17 measurements here, but I just want to confirm that 18 you have done comparative measurements between the 19 left figure and the right figure based on the 20 drawings being drawn to scale; is that correct? 21 A. That was a long question. Maybe you can 22 break it into pieces. 23 I agree -- 24 Q. Sure. 25 A. -- that I'm -- and you can look at the two	Page 57 1 arm, and so if we assume that the torsional 2 stiffness of the limb members is a linear torsional 3 stiffness, then doubling the moment arm doubles the 4 lean, tripling the moment arm, triple the lean. 5 Now, that -- that linear assumption may 6 not be quite true, but I think a person of skill in 7 the art would understand that it's going to be 8 significantly more lean, due to that increased 9 moment arm. 10 Q. And is your opinion about that significant 11 increase in cam lean based on viewing these two 12 drawings as if they were drawn to scale? 13 A. No. 14 Q. So you're not assuming these drawings are 15 to scale, but you have some other method of 16 estimating the ratio between the moment arm of the 17 figure on the right, and the moment arm in the 18 figure on the left; is that correct? 19 A. I -- I have not seen any proposal by 20 Mr. Lange of a design that has an equivalent moment 21 arm to the original Darlington or anything close to 22 that. There is clearly an increased moment arm. 23 The severity of the lean will vary a little bit 24 depending on how long that moment arm is, but the 25 problem remains of added cam lean.
Page 58 1 double-headed arrows and see that the one on the 2 right is greater than the one on the left. That's 3 what's been presented. Doesn't matter which hole 4 you pick, that's still going to be true. I didn't 5 try to assign numerical values. I'm just pointing 6 out that this creates a problem because you're 7 increasing a moment arm, and you have a cable that's 8 not riding in a track, and there's going to be cam 9 lean, and the cable is going to have difficulty 10 coming into the track in a centered way. It -- 11 it's not going to. The cam will lean, the cable 12 will miss the track altogether or rub severely 13 against the edge of the track. All these problems 14 are independent of any particular hole that you pick 15 or particular set of dimensions. They're inherent 16 in this combination. 17 Q. And do you have any ability to quantify 18 the amount of cam lean that would exist in the 19 left-hand figure in Paragraph 129 versus the 20 right-hand figure in Paragraph 129, or is it just 21 your opinion that one is greater than the other? 22 A. I think -- I think it would be possible 23 with significant effort to quantify, at least in an 24 approximate way, differences in cam lean. We can 25 see here, it looks like at least twice the moment	Page 60 1 So you're asking me: Could it be less? 2 Could it be more? Yes, it can be a little less or a 3 little more. The inherent problem in the design, 4 though, is -- is there, no matter which hole you 5 pick. Every -- every location -- every possible 6 location of the capstan that Mr. Lange didn't even 7 discuss, I think has the same problem. I don't see 8 any alternative based on his design. 9 Q. And is it your opinion that a POSITA 10 designing a bow like this would not take any steps 11 to adjust for cam lean by, for example, moving 12 components around to decrease the moment arm? In 13 other words, the POSITA does not have that 14 capability? Is that your opinion? 15 MR. COLVIN: Objection to form. 16 A. Yeah, well, Mr. Lange certainly had the 17 opportunity to consider these problems. He should 18 have been aware of this -- this is one of many 19 problems; additional cam lean. He could have 20 proposed a design, if he thought there was one, that 21 would attempt to at least mitigate this. He -- he 22 didn't make any attempt to do that. He didn't 23 discuss it at all in his declaration. 24 There are other design considerations. So 25 it's not as simple as changing one dimension and

Page 61 1 thinking that that makes this problem better. It 2 needs to be done in the holistic context of: Here's 3 a proposed design, what are all the problems that 4 may arise, and how are those mitigated? So you 5 can't look at one and isolate -- even if you could 6 make the moment arm less, you may -- as I've already 7 pointed out -- may create other -- other problems, 8 or you may exacerbate other problems that are 9 already present in the design he's proposed. 10 BY MR. SCHMIDT: 11 Q. And are -- all of those things that you 12 just suggested that a POSITA would do, are those 13 something that are within the capability of a 14 POSITA? 15 A. Again, Mr. Lange didn't even identify 16 these problems. So could a -- could a person of 17 ordinary skill in the art consider modifications to 18 the design? Yes. Would they solve the problems in 19 Mr. Lange's design? No. 20 Q. And, Dr. Reinholtz, could you turn to 21 Paragraph 131, please. 22 A. Okay. I'm there. 23 Q. And in the first sentence there, you -- 24 you state that Mr. Lange, again, conflates desirable 25 design goals with motivations to combine.	Page 63 1 combination we see here takes the design in the 2 opposite direction, and makes -- decreases the 3 sweep. So it can't possibly be a motivation to 4 combine when it makes the -- the situation worse. 5 It takes us away from the design goal. 6 Q. And when you say a "design goal that's 7 desirable," who is that desirable to? 8 A. Well, in the end, of course, the designer. 9 There are -- could be a number of affected parties. 10 The end user is certainly a important -- it's an 11 important consideration, making a bow that has more 12 adjustability to allow for a greater draw length, 13 for example, is a benefit to the end user, and would 14 be, therefore, a goal of the designer, among a 15 number of other goals. Reducing cable wear would be 16 a desirable design goal that would be of value to a 17 designer, a marketing person, and -- and a consumer, 18 and probably a number of other people, as well. 19 Q. And, in your opinion, would it be 20 desirable to -- to increase the maximum angular 21 sweep of a cam in a bow? 22 A. All other things being equal, generally, 23 yes. 24 Q. And would that increase in a maximum 25 angular sweep of the cam and a bow, could that
Page 62 1 Could you describe the difference between 2 a "desirable design goal" and a "motivation to 3 combine"? 4 A. Sure. Yeah, he does this repeatedly. 5 So, yes, you'd like to -- in this case, 6 we're talking about a maximum angular sweep of the 7 rotatable member. And as I have already discussed, 8 increasing the sweep of the rotatable member can be 9 one factor in increasing the draw length and energy 10 storage -- storage capacity of a bow. 11 So, clearly, it can be beneficial to 12 increase the angular sweep of the rotatable member, 13 but a motivation to combine implies that the 14 combination benefits, and creates this additional 15 sweep, and that's clearly not true in the proposed 16 combination. The sweep is, at best, the same, and 17 probably less. So that -- we'd like to get more 18 sweep, doesn't mean you combine these two references 19 because the combination doesn't give you that. 20 That's the difference. 21 Q. So could a desirable design goal ever be a 22 motivation to combine? 23 A. If the combination creates the de- -- 24 the -- or moves the design in the direction of that 25 goal, then, yes, certainly. But the -- the	Page 64 1 provide a mo- -- motivation to combine with another 2 reference that would allow you to do that? 3 A. I- -- I've seen no evidence of that. 4 Q. So if a reference had a way to increase 5 the maximum angular sweep of a cam in a bow, in your 6 opinion, that would not provide a motivation to 7 combine that reference? 8 A. Yeah, I'm sorry, may- -- maybe I didn't 9 answer your question before. 10 I'd have to see the reference. What 11 we're -- what has been proposed certainly doesn't 12 provide a motion to combine. If you're suggesting 13 that there might be some other combination of 14 references that would increase the angular sweep, 15 I'd have to analyze those and consider them. 16 Q. Dr. Reinholtz, can you turn to 17 Paragraph 137, please. 18 A. Okay. I'm at the beginning of 19 Paragraph 137. 20 Q. Thank you. 21 So you state at the bottom of page 115 22 that, One simple -- One simple difference that can 23 easily be observed is that Cable 30 is closer to the 24 center of cam rotation in the modified Darlington 25 pulley than it is in the original Darlington.

Page 65 1 Do you see that? 2 (Witness is reviewing document.) 3 A. Yes, I do see that. 4 BY MR. SCHMIDT: 5 Q. So is it your opinion that having the 6 power cable closer to the center of the cam reduces 7 the amount of power that can be stored in the cam? 8 A. Well, again, it's not necessarily simple. 9 There are a lot of factors that have to be 10 considered regarding energy storage. For example, 11 the stiffness of the limbs and how much they 12 deflect, but all -- again, all things being equal, 13 it's clear, just visual inspection of the two 14 figures, the original Darlington, as Darlington 15 proposed it, on the left, and the combination 16 proposed by Mr. Lange, that the cable -- Power 17 Cable 30 is now closer to the center of rotation of 18 the cam, and, therefore, will have less travel, and 19 will cause less deflection of the bows, and 20 other things being -- of the limb -- and other 21 things being equal, will store less energy. 22 Q. And could increasing the amount of 23 rotation on the cam offset that difference? 24 A. I think it's possible. I haven't seen any 25 such design proposal.	Page 67 1 In the figures that I presented in my 2 declaration, I've taken Darlington, Figure 4B, and 3 I've taken the modification that Mr. Lange proposes 4 and I'm comparing those. So I think that's a -- 5 clearly, a direct and fair comparison. I don't 6 think -- at least off the top of my head, I can't 7 make such a comparison between the Figure 4 in the 8 '989 patent, and Figure 4B in Darlington. 9 Q. And is the reason you can't make that 10 comparison, then, because the scales might be 11 different? 12 A. Well, a number of things are different; so 13 it's comparing two different -- totally different 14 designs. 15 Q. But is it -- as -- as you stated, is it 16 partly because the scales are different, you can't 17 tell whether the power cable is closer to or farther 18 away from the center of rotation of the cam; is that 19 correct? 20 A. Because we don't know the scales, we don't 21 know absolute distances, but I also make the point 22 that there are other -- a number of other 23 considerations, that we can't make a direct 24 comparison like we can between the design proposed 25 by Mr. Lange, and the original Darlington. That's a
Page 66 1 Q. Dr. Reinholtz, could you, please, take a 2 look at Figure 4B of the Darlington reference. And 3 we're going to compare that to Figure 4 of the '989 4 patent. 5 A. Okay. I am looking at Figure 4B of 6 Darlington. 7 Q. And comparing Figure 4B of Darlington to 8 Figure 4 of the '989 patent, is it your opinion that 9 the original unmodified Darlington stores more 10 energy than the invention shown in Figure 4 of the 11 '989 patent? 12 (Witness is reviewing document.) 13 A. I haven't considered this question. I'd 14 have to think more about it. But I don't think, 15 necessarily, one stores more energy than the other. 16 BY MR. SCHMIDT: 17 Q. The reason I asked the question is the -- 18 well, strike that. 19 Would you agree that Figure 4B of 20 Darlington depicts a power cable that is further 21 away from the center of the cam than is depicted in 22 Figure 4 of the '989 patent? 23 A. Well, I don't -- I don't think we can say 24 that. The -- there's a scale issue here. So we're 25 not comparing apples to apples.	Page 68 1 apples-to-apples comparison where we have two 2 devices that have the same geometric structure and 3 the same layout. So I think we can make some 4 analy- -- we can make some conclusions there, but I 5 couldn't make similar conclusions -- at least with 6 not -- without doing additional analysis and without 7 additional consideration with respect to Figure 4 of 8 the '989 patent. 9 Q. And when you say that you did 10 apples-to-apples comparisons of Figure 4B and the 11 combination that Mr. Lange has proposed, is that 12 because you're assuming the scales are the same in 13 those two -- in that comparison? Is that what the 14 "apples to apples" means? 15 A. I will -- I will answer this way: That if 16 you change the scales of these two devices, then 17 other factors come in, and so other problems, like 18 the velocity discontinuity, cable wear issues, also 19 become an issue. 20 So looking at these two designs, as 21 they're presented, clearly, there will be less 22 ability to store energy in the design proposed by 23 Mr. Lange compared to Darlington. 24 I haven't seen other designs to consider 25 what the other problems might be or how the other

Page 69 1 problems that are already present in this combined 2 design may be made worse by making changes in scale, 3 for example. 4 Q. But in the conclusions you just described 5 there, are you assuming that the scale is the same 6 between Figure 4B of Darlington, and the combined 7 Darlington and Islas proposal that Mr. Lange has 8 provided? 9 A. Well, I'm looking what Mr. Lange provided 10 and comparing energy storage capability. Clearly, 11 it's less in the proposed combination. Whether 12 there's some modified version of this that Mr. Lange 13 could propose, but hasn't, I haven't considered 14 that. But at least for the -- focused on energy 15 storage, the design that Mr. Lange proposes is 16 clearly inferior to the original Darlington figure. 17 Q. So I -- I don't think you asked -- 18 answered my question, Dr. Reinholtz. 19 When you say that the energy stored in the 20 proposal for Mr. Lange is, quote, clearly less, is 21 that based on an assumption that the scale of the 22 drawings between Darlington's Figure 4B and the 23 combination proposed by Mr. Lange is the same -- the 24 same scale? 25 A. Yeah, I will answer that with a qualified,	Page 71 1 few minutes, and I'll see if I have any redirect. 2 MR. SCHMIDT: Sounds good. 3 (A recess was taken from 11:59 a.m. to 4 12:01 p.m.) 5 MR. COLVIN: Okay. No further questions 6 here. That will conclude the depo. 7 MR. SCHMIDT: And should I ask on the 8 record, Kara, for a rough copy? 9 THE COURT REPORTER: I already have that. 10 I have a rough. 11 I was going to ask Mr. Colvin, do you need 12 a rough or do you need it expedited? 13 MR. COLVIN: No. That's not necessary 14 here. 15 THE COURT REPORTER: Dr. Reinholtz, are 16 you going to read and sign? 17 MR. COLVIN: Yes. 18 (The deposition concluded at 12:04 p.m.) 19 20 21 22 23 24 25
Page 70 1 yes. So looking at precisely what Mr. Lange's 2 proposed, and not some modification that I would 3 have to generate, I'm comparing two very similar 4 figures that are at the same scale. Making other 5 changes, as I have already noted, has the potential 6 to worsen other problems in the design, and, 7 therefore, I would need to consider every issue -- 8 all of the issues that I've raised, and maybe 9 others, if we're going to talk about changing the 10 scale. 11 So looking at these two figures, yes, the 12 scales, I'm thinking about them being the same. If 13 there's some suggestion that there could be a 14 modification for this that hasn't been proposed by 15 Mr. Lange, I'd be happy to consider that, but it 16 needs to be considered in the full context of the 17 design, and not just: Could you make this bigger, 18 and store more energy? That's not really a -- it's 19 not a question that a person of skill in the art 20 would accept. That's not the right premise to base 21 the question on. 22 MR. SCHMIDT: Dr. Reinholtz, thank you for 23 your time today. I don't have any further 24 questions. 25 MR. COLVIN: Let's go off the record for a	Page 72 1 CERTIFICATE OF REPORTER 2 3 I, Kara D. Ince, a Certified Court 4 Reporter for the State of Missouri, do hereby 5 certify that the witness whose testimony appears in 6 the foregoing deposition was duly sworn by me; the 7 testimony of said witness was taken by me to the 8 best of my ability and thereafter reduced to 9 typewriting under my direction; that I am neither 10 counsel for, related to, nor employed by any of the 11 parties to the action in which this deposition was 12 taken, and further that I am not a relative or 13 employee of any attorney or counsel employed by the 14 parties thereto, nor financially or otherwise 15 interested in the outcome of the action. 16 17  18 19 Kara D. Ince 20 Missouri Supreme Court 21 Certified Court Reporter 22 23 24 25

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3	RAVIN CROSSBOWS, LLC v. MCP IP, LLC	
4	Date Taken: February 11, 2025	
5	Page #____ Line #____	
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3	I, Charles Reinholtz, do hereby certify:	
4	That I have read the foregoing deposition;	
5	That I have made such changes in form and/or	
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7	be necessary to render the same true and	
8	correct;	
9	That having made such changes thereon, I	
10	hereby subscribe my name to the deposition.	
11	I declare, under penalty of perjury, that	
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