

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

VERMONT SAFETY DEVELOPMENTS)
LLC,)

Plaintiff)

v.)

Case No. 2:23-cv-00089

HEAD SPORT GmbH,)

Defendant.)

**VERMONT SAFETY DEVELOPMENTS, LLC'S DISLCOSURE OF CLAIM
CONSTRUCTION EXPERT OPINION BY JASPER E. SHEALY, Ph.D.**

I, Jasper E. Shealy, state as follows:

1. I am currently a Professor Emeritus at the Rochester Institute of Technology (RIT). I submit this Declaration in support of Plaintiff Vermont Safety Developments, LLC's Claim Constructions in this matter. In particular, I submit this Declaration to provide relevant background information regarding the technology at issue in U.S. Patent No. 7,523,953 (the Ettlinger Patent or the "Patent-in-Suit") (attached as Exhibit 2), and to set forth my opinions about the meaning of certain disputed claim terms in the Ettlinger Patent from the perspective of a person of ordinary skill in the pertinent field.

I. Qualifications, Experience, and Publications

2. The following is a brief summary of my background and qualifications. My background and qualifications are more fully set out in my curriculum vitae (CV), attached as Exhibit 1.

3. I have almost 50 years' experience with ski equipment design, ski injury research and development of standards relating to ski equipment. I am currently a Professor Emeritus at RIT. I was an active professor at RIT from 1973 to 2001. I rose from the ranks of Assistant professor to full professor and was granted tenure during this 28-year span. I was granted Emeritus status upon retiring from RIT. For the last ten years, I was the Head of the Industrial and Systems Engineering Department. During this time, my principal research interest was Ski Injury Research and I actively participated in such research as well as the development of standards that relate to skiing and snowboarding equipment. Among the many ASTM and ISO standards that I helped develop were ASTM F-504 (binding test methods), ASTM F-939 (recommended release value for alpine ski bindings) and ASTM F-110x (standards how ski shops inspect and adjust ski bindings). During this time and after 1978 to 2022, I was a principal co-investigator with Carl Ettlinger and Robert J. Johnson in conducting a prospective case-control epidemiological investigation of ski injuries at the Sugarbush Ski Resort in Waittsville, VT.

4. I obtained a Bachelor of Science degree in Applied Psychology from the Georgia Institute of Technology in 1963. I also obtained a MS and PhD in Human Factors/Ergonomics from the State University of New York at Buffalo (SUNY/B) completing said studies in 1973.

5. From 1973 until 2001 while at RIT, I taught undergraduate and graduate courses concerning Engineering Design, Safety Engineering, Statistics, Human factors Engineering, and

Research Methodology, among others. I supervised undergraduate and graduate students on various topics relating to Industrial and Systems Engineering.

6. As shown in my CV, I have authored or coauthored over 100 publications and or presentations including publications concerning ski injury research, ski equipment design and ski area design. I also have served as an editor and peer reviewer for scholarly publications and journals, including numerous ASTM STEPs and the AJSM.

7. I am a member of several industry and professional organizations, including the American Society for Testing and Materials (ASTM), the International Society for Skiing and Safety (ISSS). I am a past member of American Society of Safety Engineers (ASSE), Human Factors and Ergonomics Society (HFE), and the National Ski Patrol System (NSPS).

8. I also regularly attend and present at the biennial meetings of the ISSS, industry and educational conferences concerning ski injury research and ski equipment standards. In the past I have made similar presentations at NSPS conferences as well as the National Ski Areas Association (NSAA) annual national meetings. I have made presentations on my research to the U.S. Consumer Protection Safety Commission, the American Academy of Orthopedic Surgeons (AAOS), the New England Medical Association (NEMA), and the Maine Society of Orthopedic Surgeons (MSOS).

9. I received the American Academy of Orthopedic Surgeons (AAOS) award for best ski injury research in 1973. I received a Life Time Achievement award from the NSAA in 2014, and a similar award from ASTM in 2014.

II. Compensation

10. I am being compensated for my time spent on this matter at my usual and customary rate of \$1,000/hr., plus reasonable expenses. My compensation is not related to the outcome of this action, and I have no financial interest in this case.

III. Prior Testimony

11. I have served as an expert in the following two cases during the previous ten years:

- KneeBinding, Inc. v. Marker Volkl USA, Inc., Case No. 2:15-cv-00121, in the United States District Court of Vermont, in 2015.
- Jordan v Menjoulet, Case No. 1:21-cv-10643-MAG-PTM, in the United States District Court for the Eastern District of Michigan, Southern Division, in 2021.

IV. Materials Considered

12. In preparing this declaration, I have considered the Ettlinger Patent, its prosecution history, Plaintiff Vermont Safety Developments LLC's Preliminary Claim Constructions with Supporting Evidence, and evidence identified therein, Head Sport GmbH's Proposed Construction of Disputed Claim Terms, Joint Claim Construction Statement, and ISO standards 9462 and 9465. I also relied upon my almost 50 years of general experience in the field, though the testimony I offer is from the person of ordinary skill as I have defined it below.

V. Summary of Opinions

13. I understand that Vermont Safety Developments LLC has filed the present lawsuit against Head Sport GmbH and alleges infringement of claims 53-56 and 58-60 of the Ettlinger Patent.

14. I understand the parties dispute the meaning of the number of terms used in the claims of the Ettlinger Patent as addressed below in paragraphs 39-145.:

15. If called as a witness to testify at a claim construction hearing, I expect to testify on the following topics and provide opinions and testimony on what is summarized in this declaration:

- The Ettlinger Patent, its specification, claims, prosecution history, and the technology underlying what is disclosed in the Ettlinger Patent.
- The level of ordinary skill in the art to which the Ettlinger Patent is directed.
- My opinions on how the disputed terms identified in paragraph ____ below would have been interpreted by a person of ordinary skill in the art at the time of invention.
- My opinions that the Ettlinger Patent fully informs, with reasonable certainty, a person of ordinary skill in the art in 2006 about the scope of the claimed invention.

VI. The Patent-in-Suit and Relevant Technology

16. The Ettlinger Patent is titled "Alpine Ski Binding System Having Release Logic for Inhibiting Anterior Cruciate Ligament Injury" and generally relates to a ski binding system for releasably securing a ski boot to a ski. The patent describes ski binding systems that include an attenuated lateral release in addition to a conventional lateral release. The types of ski binding systems described also typically include a vertical release, but the vertical release is not a focus of the described inventions and is thus only briefly mentioned. The attenuated lateral release is achieved through a release mechanism that provides an attenuated release threshold under lateral shear loading conditions that can cause anterior cruciate ligament (ACL) injuries. The attenuation is relative to conventional lateral release loading conditions, which are outlined in ASTM standard F939, Standard Practice for Selection of Release Torque Values for Alpine Ski Bindings. ASTM standard F939, a standard that I helped create, is a standard setting out release torque values intended to reduce the likelihood of tibial shaft injuries when lateral loads are applied to a ski such as in a twisting fall. F939, however, does not address reduction of ACL injury. The inventions described in the Ettlinger Patent are based on knowledge, newly developed at the time, regarding the mechanism of ACL injury in skier falls, including an understanding tibial loading conditions leading to ACL injury tend to result from a specific type

of backward twisting fall and in that scenario can occur at tibial torque values less than the release values specified in ASTM standard F939.

17. The ski binding systems described in the Ettlinger patent are able to identify when the specific loading conditions that lead to ACL injury are likely to be occurring and to then provide the attenuated release at a threshold below the anticipated torque related to ACL injury. Otherwise, the described ski binding systems operate in a conventional lateral release mode, for example according to the values specified in the F939 standard. The described ski binding systems do this by activating or permitting the attenuated lateral release in response to a trigger that senses the lateral shear loads applied to the inside tail portion of the ski and triggers lateral release of the ski boot at an attenuated release torque. Lateral shear loads applied to the ski along the ski in front of the binding substantially do not cause the trigger to activate the attenuated release, in which case the ski binding system releases at conventional torque settings, for example as per the F939 standard.

A. Background Technology

18. For the purposes of this case, it is useful to have basic understanding of the state of the art and operation of conventional ski binding systems prior to the Ettlinger patent. Many such prior systems are described in the patents and articles cited during the prosecution of the Ettlinger patent as listed therein. In terms of basic operation, widely used state of the art ski binding systems in the early 2000s had not changed significantly since introduction of that binding type in the 1970s. These bindings are characterized by a toe piece that provides a lateral toe release in response to twisting forces applied to the skier's foot and leg and a heel piece that provides a vertical release in response to forces on the skier's foot and leg that would be created, for example, by a fall forward over the tips of the skis. One example of this type of binding is

the Geze G70 described by Mr. Ettlinger in a Skiing Magazine article in 1988 (C. Ettlinger, The New Geze Line, Skiing, Oct. 1988, pp. 190-94). My work in developing the F939 standard involved determining the appropriate tibial torque values for lateral release. While less common and generally limited to alpine touring binding systems, during this time there were also some bindings that provided lateral release at the heel by rotation of the heel piece.

19. Prior to the instruction of standardized toe and heel release bindings, such as the Geze G70, a variety of non-standardized binding release systems were proposed, some with only toe releases, but none gained wide acceptance. Well into the 1970s many skiers were still using cable bindings with minimal to no release characteristics.

B. The Claims

20. The Ettlinger Patent contains 61 total claims, 5 independent claims and 56 dependent claims. As noted above, I understand that VSD is asserting infringement of only claims 53-56 and 58-60 of the Ettlinger Patent.

C. The Prosecution History

21. The Ettlinger Patent issued on April 28, 2009, from Application Serial Number 11/834,041 filed on August 6, 2007 (the "'041 application") with 55 original claims. The '041 application claims priority to U.S. Provisional Patent Application Number 60/836,454, which was filed on August 8, 2006.

22. On August 1, 2008, the Patent Examiner issued a restriction requirement identifying a number of different embodiments disclosed in the Ettlinger Patent and requiring the applicant to elect claims to be examined.

23. In a response to the Restriction Requirement filed September 2, 2008, the Applicant added new claims 56 – 81, which it described as “directed to alternative ways of

claiming various inventive concepts of the current application” and supported by the descriptions, “for example, in paragraphs [0010]-[0025] and [0047]-[0052] and FIGS. 1-8 and 22-24 that accompany the descriptions from these paragraphs.” The Applicant further described new claims 56-67 and 69-80 as directed to Species I, which the Examiner had identified as disclosed in FIGS. 9A-11.

24. On October 14, 2008, the Patent Examiner rejected pending claims 56, 69, 70, and 72-74 in the application U.S. Patent No. 6,007,086 to Hopkins, but also stated that pending claims 1-9, 13-17, 19, 20, 25 and 26 were allowed and pending claims 57-67, 71 and 75-80 contained allowable subject matter.

25. As relevant here, with respect to allowable dependent claims 62 and 76, which ultimately were incorporated into independent claims 53 and 58, respectively, of the granted Ettlinger Patent and which are asserted in this case, the Examiner stated that:

The allowable subject matter present in claims 62, 75, and 76 that has not been found to have been taught or disclosed in the prior art found at this time is that the ski binding assembly has a second release, said first release being an attenuated release relative to said second release. Therefore claims 62, 75, and 76 and any claim(s) that depend therefrom are found to contain allowable subject matter.

See page 5 of October 14, 2008 Office Action

26. On January 13, 2009, in response to the October 14, 2008 Office Action, the Applicant elected to amend the claims to accept the subject matter indicated as allowed and allowable by the Examiner. These amendments, as relevant to the claims asserted in this case, included the addition of new independent claim 82 combining the limitations of rejected claim 56 and allowable claim 62, new claims 83-85 depending from new claim 82, new independent claim 87 combining the limitations of rejected claim 69 with the limitations of allowable claim 76, and new dependent claims 88 and 89 depending from new claim 87.

27. The Examiner issued a Notice of Allowance on March 10, 2009, which included no additional statement of reasons for allowance.

28. On April 28, 2009, the USPTO granted the Ettlinger Patent in which application claims 82-85 were renumbered as patent claims 53-56 and application claims 87-88 were renumber as patent claims 58-60, which patent claims are at issue in this case.

VII. Claim Construction Principles

29. I am not an attorney and do not have formal training in the law regarding patents. This section sets forth my understanding of currently applicable legal principles, provided by counsel for VSD, which I have used in forming the opinions set forth herein.

30. I understand that claim construction is the process by which a court determines, as a matter of law, the scope and meaning of terms used in the claims of a patent. I further understand that the goal of this process is to give claim terms the ordinary and customary meaning they would have had to a person of ordinary skill in the art at the time of the invention, after reading the entire patent and prosecution history.

31. I am informed that the words of a claim are generally given their ordinary and customary meaning. I understand that the ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.

32. I further understand that it is possible that the patent specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise have to a person of ordinary skill. In such cases, I understand that the patentee's definition usually controls.

33. I understand that the prosecution history of a patent can inform the meaning of some claim language and must be taken into account in construing the claims.

34. I understand that, in some cases, the court may consider extrinsic evidence, such as technical dictionaries, treatises, and expert opinions, to understand the underlying technology and the way in which claim terms would be understood by a POSA at the relevant time.

However, such extrinsic evidence should not be used to vary, contradict, expand, or limit the claim language from how it is defined in the specification or prosecution history.

35. I understand that a patentee may draft a patent claim in means-plus-function form. In these cases, I understand that the term must be defined by first identifying the claimed function and then determining the structure, if any, disclosed in the specification that has a clear link to the function.

36. I understand that a patent will be held invalid for indefiniteness if its claims, viewed in light of the specification and prosecution history, fail to inform with reasonable certainty those skilled in the art about the scope of the invention. I further understand that definiteness is to be evaluated from the perspective of someone with skill in the relevant art at the time that the patent was filed.

VIII. Level of Skill in the Art

37. The inventions described in the Ettlinger Patent are related to the field of alpine ski bindings and the design of alpine ski binding systems. Having reviewed the Ettlinger Patent and its prosecution history, and based on my knowledge and experience related to ski equipment design and ski injury analysis, in my opinion, a person of ordinary skill in this art in about 2006 would have had at least a degree in engineering and about four to five years of experience in one or more of ski binding design, manufacture, or testing; research concerning ski bindings and

related equipment; or the development of standards concerning ski bindings or related equipment. A higher level of education may compensate for less work experience, and vice versa. The person of ordinary skill would also have a good working knowledge of the relevant standards including ASTM standard F504-05, Standard Test Method for Measuring the Quasi-Static Release Moments of Alpine Ski Bindings, ASTM standard F939, Standard Practice for Selection of Release Torque Values for Alpine Ski Bindings, ISO standard 9465, Alpine Ski-Bindings – Lateral release under impact loading – Test method, and ISO standard 9462 Alpine Ski-Bindings – Requirements and Test methods.

38. All opinions expressed herein regarding the knowledge or understanding of persons of ordinary skill in the art are based on the knowledge and understanding as of the time of invention which is taken as 2006 based on the filing and priority dates of the Ettlinger patent.

IX. Meaning of Disputed Claim Terms

1. “a first release”	
VSD	HEAD
"A mechanism within the ski binding assembly that allows lateral separation of the ski boot from the ski automatically and without skier intervention in response to a predetermined external loading of the ski corelated to an estimated tibial axis load level selected to lessen the likelihood of ACL injury (i.e. in response to the “release condition” being met)"	“A lateral toe release, i.e., a release of the ski boot from the toe piece of the binding in a transverse direction substantially perpendicular to the longitudinal axis of the ski.”

39. The term "a first release" appears in claims 53 and 58 of the Ettlinger Patent. In my opinion, a person of ordinary skill, at the time of invention, would understand "a first release" as used in those claims to mean a mechanism within the ski binding assembly that allows lateral separation of the ski boot from the ski automatically and without skier intervention in response to a predetermined external loading of the ski corelated to an estimated tibial axis load level selected to lessen the likelihood of ACL injury. Further, the person of ordinary skill would understand that the “first release” is activated in response to the “release condition” being met.

40. It may be noted that my opinion as to the meaning of this claim term adds the further limiting term “lateral” to the definition originally proposed by VSD. Upon more detailed study of the Ettlinger Patent and the other materials cited herein in preparation of this disclosure, I realized that the claim term definitions addressed in this report related to release should be qualified as lateral release. In general, there are two release directions in alpine ski bindings: vertical and lateral. The inventions disclosed and claimed in the Ettlinger Patent are directed only to the lateral release mode, which protects against injuries to the tibia and knee as a result of

forces causing moments on the skier's leg generally oriented around the shaft of tibia (tibial axis).

41. The term “release” by itself in general is a well-understood term of art in the art of ski binding design that, depending on context, describes the operation of the bending to release the boot, or as a mechanism of the binding that causes the release to happen. See, for example, ASTM standard F504 which uses “release” in the title and throughout the standard. ASTM standard F939 also uses “release” in the title and in discussing “binding release characteristics,” “release/retention settings,” “inadvertent binding release” and release settings for different skier types. ISO standard 9462 also uses similar terminology.

42. A starting point for understanding the meaning of this claim term as used in the claims is the claims themselves. Both claims 53 and 58 recite a first release and a second release, and state that the first release is attenuated relative to the second release.

43. The specification provides a number of examples that describe binding systems with an attenuated release, often referred to as a secondary toe release in some specific examples, and a non-attenuated release, often referred to as a primary release in some specific examples. See, for example, the discussion of reduced release threshold at the bottom of column 4, the discussion of “lower than normal release torque” and conventional release at the bottom of column 5 and on to column 6 with reference to FIGS. 2-5, 7 and 8, the discussion of secondary release criteria in column 8, explanation of attenuated release torque in column 10, and discussion of attenuated release in column 17, among other places. A person of ordinary skill in the art reading the Ettlinger Patent would thus understand the mechanisms described as “secondary toe release” in the specification to be examples of the first release in the claims because the secondary toe release is the attenuated release, as is the first release in the claims.

For the same reasons, a person of ordinary skill would understand mechanisms described as “primary release” in the specification to be examples of the second release in the claims, among other reasons because the primary release is not an attenuated release but is instead set according to recommended release settings, such as recommended in ASTM standard F939. The teachings in ASTM standard F504 and ISO standard 9462 are also relevant to understanding the meaning of this claim term.

44. Further, the Ettlinger Patent specifically describes the purpose of the attenuation of the release is to allow for release at lower torques to protect against ACL injuries. This is discussed in detail in columns 6 and 7, with examples of attenuated release values provided in a table in column 6. Similar explanation is also provided in column 4 on to column 5.

45. This definition is also supported by the multiple examples of different binding configurations with different first release mechanisms described in the Ettlinger patent. Examples of the first release mechanism include secondary toe release 612 in FIG. 6 described in column 7, secondary toe release 936 in FIG. 9B described in column 9, and toe or heel pieces 2216, 2212, respectively, as described in columns 16 and 17.

46. This interpretation is also supported by the statement by the Examiner in the prosecution history quoted above regarding the allowability of dependent claims 62, 75, and 76 based on the claimed binding assembly having a second release and that the first release is an attenuated release relative to the second release. This statement shows that the Examiner specifically focused on the meaning of the term first release (and second release) and understood based on the descriptions of examples in the specification wherein the first release is variously referred to as a secondary lateral toe release or a second release that is attenuated with respect to the primary release of the binding.

47. When all of this information is considered together, in my opinion, it leads to an interpretation of “a first release” as proposed above by VSD.

48. I understand that Head asserts that the term "a first release" should be interpreted to mean “a lateral toe release, i.e., a release of the ski boot from the toe piece of the binding in a transverse direction substantially perpendicular to the longitudinal axis of the ski.” I disagree with this interpretation at least because it completely ignores the primary purpose of the of the inventions described in the Ettlinger Patent to provide an attenuated release that would be protective against ACL injury in certain loading conditions. Another reason this interpretation is incorrect is because it is limited to only one type of release used in some examples in the Ettlinger patent but excludes embodiments in which the heel piece provides an attenuated release (for example at the top of column 17). This interpretation is also incorrect in my opinion because it does not distinguish the first release from the second release.

2. “release logic”	
VSD	HEAD
"a specific sequence of actions executed by components of the ski binding assembly, and the components that execute the sequence of actions, in response to externally applied loads on the ski that allow or disallow binding release (via the first release) to occur dependent upon whether predetermined loading conditions are met that would indicate risk of ACL injury (i.e., the release condition)."	[edited to remove legal argument and cases] “Means plus function term subject to § 112, ¶ 6. Thus, this limitation must be construed to cover the corresponding structure, material, or acts described in the specification. Although this term does not use the word “means,” it should be construed as means-plus-function terms because it does not “recite sufficiently definite structure’ or else recite[] ‘function without reciting sufficient structure for performing that function.’” The term “is a “nonce” term, ... and does not, standing alone, connote any particular structure. Function: laterally releasing the toe of the ski boot

49. The term "release logic" appears in claims 53 and 58 of the Ettlinger Patent. In my opinion, a person of ordinary skill, at the time of invention, would understand "release logic" as used in those claims to mean a specific sequence of actions executed by components of the ski binding assembly, and the components that execute the sequence of actions, in response to externally applied loads on the ski that allow or disallow binding release to occur dependent upon whether predetermined loading conditions are met that would indicate risk of ACL injury. The predetermined loading conditions in this case would be understood to be release condition.

50. A “logic” is generally understood in its plain meaning as referring to a mechanical, electrical or optical system that preforms a logical operation based on one or more inputs. “Logic” is also sometimes used synonymously or interchangeably “logical operation” to refer to the series of steps performed to provide a result of the logical operation. In the case of

the Ettlinger patent, the logical operation is the determination of whether or not the “release condition” is met so as to trigger a “first release”. I also noted that my understanding of the plain meaning of “logic” is supported by the dictionary definitions identified by VSD in its listing of supporting evidence.

51. The Ettlinger Patent provides a number of examples of the release logic that inform a person of ordinary skill as to the meaning of that term. For example, in column 9, referencing FIG. 9AB, one example of the release logic is provided as a mechanical mechanism involving the trigger plate and secondary toe release. In another example, described in columns 16 and 17 with reference to FIGS. 22-24, the release logic is implanted with a digital or analog controller, for example using a microprocessor. This electronic implementation is explained in detail in column 17 with reference specifically to FIG. 24.

52. These descriptions and numerous other references describing the release logic throughout the Ettlinger Patent instruct a person of ordinary skill as to the specific sequence of actions (load assessment, trigger based on the assessment and attenuated release when trigger condition met) and mechanical mechanisms implemented with pivots, sliding or cam surfaces and springs or electronic/digital components such as a microprocessor. In my opinion, these descriptions lead the person of ordinary skill to understand the “release logic” as defined by VSD above.

53. I understand that Head asserts that the term "release logic" should be interpreted according to case law as being a so-called “means plus function term.” While I have no opinion on the legal discussion provided by Head, I do disagree with the facts Head appears to offer to support its legal interpretation. Head states that the term “release logic” is a “nonce” word that “does not, standing alone, connote any particular structure.” This is not correct. A logic is a

form of a structure that is used to implement decision making type processes, which is borne out by the plain meaning of “logic” as explained above.

54. I also disagree with the function as stated by Head. The Ettlinger Patent describes versions of the release logic in which the heel is laterally released. See, column 17.

3. “release condition”	
VSD	HEAD
"A predetermined external loading of the ski correlated to an estimated skier tibial axis load level selected to lessen the likelihood of ACL injury"	"A release condition occurs when a load applied to the ski binding exceeds a certain magnitude, requiring a release of the ski boot from the ski binding."

55. The term "release condition" appears in claim 53 of the Ettlinger Patent. The term is part of the claim limitation “said ski binding assembly including release logic that causes the ski binding assembly to release the ski boot at said first release in response to a release condition...” This context is important to the understanding of the meaning of the term.

56. In my opinion, a person of ordinary skill, at the time of invention, would understand "release condition" as used in claim 53 to refer to a predetermined external loading of the ski correlated to an estimated skier tibial axis load level selected to lessen the likelihood of ACL injury.

57. The definition proposed by Head as above would be a reasonable definition of “release condition” in the abstract or as it is generally used in the art when not referring to a specific binding or binding set up. See, for example, ASTM standard F504, which discusses in ¶ 4.2 “loads sufficient to produce a binding release.” This is, in general, a reference to a release condition. ASTM standard F939 also extensively discusses binding release settings. In that context the release condition is a load condition that exceeds the binding release setting.

58. However, in the context of the specific limitation of claim 53 in which the term “release condition” is used, it is clear that the release condition refers to a specific ski loading condition that would increase the risk of ACL injury and thus it is the loading condition that

would trigger exceed the release setting (using ASTM standard F939 terminology) to trigger the attenuated release of the claimed binding system.

59. The term “release condition” is specifically used in column 13 of the Ettlinger patent as being the cause of actuation of the secondary toe release mechanism in the example explained there. Persons of ordinary skill would also understand that the release condition is explained in numerous places in the Ettlinger Patent by reference to the release envelopes and recommended release torques shown in FIGS. 2-5, 7 and 8. Column 18 also discusses setting of the predetermined release torque for the electronic binding embodiment, which corresponds to setting the release condition.

60. With all of the above information taken together by a person of ordinary skill, in the specific context of its use in claim 53, my opinion is that meaning would be understood not just as referring to a load condition that causes release of the binding in general, but a specific load condition selected to lessen the likelihood of ACL injury as described in the Ettlinger patent. In other words, the release condition in claim 53 represents the loading conditions that cause the release logic to trigger the attenuated release.

61. I disagree with the interpretation offered by Head for the reasons explained above.

4. “first axis”	
VSD	HEAD
"An axis of rotation substantially perpendicular to the plane of the ski at a specific point on the ski relative to the tibial axis."	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

62. The term "first axis" appears in claims 53 and 58 of the Ettlinger Patent. In claim 53, the term is part of the larger claim limitation describing the binding assembly as configured to “assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system ...” In claim 58, it is part of the larger claim limitation describing the first release as occurring when “a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system, exceeds a first defined level and has a first defined sense...”

63. In my opinion, a person of ordinary skill, at the time of invention, would understand "first axis" as used in those claim limitations to refer to an axis of rotation substantially perpendicular to the plane of the ski at a specific point on the ski relative to the tibial axis.

64. “Axis” is a well-understood term in mechanical arts and is generally understood to refer to a “line” around which rotation occurs or as a reference location in a mechanism. One example of this use is in ASTM standard F504, which describes standard for measuring release moments in alpine ski bindings with reference to rotations around x, y, and z axes where the z axis is an axis perpendicular to the top surface of the ski aligned with the approximate location of a skier’s tibial axis. See, for example, ¶¶ 3.1.1 and 6.4.4, and FIGS. 1-15 of F504.

65. There are there are a number of different axes described and identified in the Ettlinger patent as part of the disclosed mechanism. One axis is the tibial axis, which is illustrated in a 3D perspective view in FIGS. 9A and 9B, identified as 942. The tibial axis is also identified in the various release envelope graphs in FIGS. 2-5 as well as in FIG. 1 (#116), FIG. 6 (#644), and FIG. 24 (#2420). Other axes described in the examples presented in the specification of the Ettlinger Patent include (in FIG. 1) longitudinal central axis of the ski 112, (in FIG. 6) secondary toe release pivot axis 616, trigger platform pivot axis 624, binding pivot axis 650, (FIG. 14) trigger pivot axis 1444.

66. This definition is further consistent with and supported by the example ski binding shown in FIG. 24 and as described at the bottom of column 17 on to column 18. As described there, the first axis would be understood to be located at either distance L1 or L2 from the tibial axis 2420. Note that the use of “first” in “first axis” is merely as an identifier to distinguish the first axis from the second axis and to associate related terms such as “first loading” with the first axis and does not suggest any order or timing between the first and second axis and related terms.

67. I understand that Head finds it impossible to understand the meaning of “first axis” and thus asserts only that the term is indefinite under § 112 of the patent law. I disagree. The term “first axis” is a simple term composed of a commonly understood term “axis”. The use of “axis” in the claims is completely consistent with its use in the specification such that there is no ambiguity or inability by a person of ordinary skill in understanding the meaning of the term.

5. “second axis”	
VSD	HEAD
An axis of rotation parallel to and spaced from the “first axis,” and substantially perpendicular to the plane of the ski at a different specific point on the ski relative to the tibial axis	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

68. The term "second axis" also appears in claims 53 and 58 of the Ettlinger Patent. In claim 53, the term is part of the larger claim limitation describing the binding assembly as configured additionally to “assess, relative to a second axis, spaced from said first axis and substantially parallel to said first axis, a second loading internal to the ski system caused by the external loading applied to the ski system ...” In claim 58, it is again part of the larger claim limitation describing the first release as occurring when “a second loading, internal to the ski system along or about a second axis and caused by the external loading, exceeds a second defined level and has a second defined sense...”

69. In my opinion, a person of ordinary skill, at the time of invention, would understand "second axis" as used in those claims to mean an axis of rotation parallel to and spaced from the first axis as defined above, and substantially perpendicular to the plane of the ski at a different specific point on the ski relative to the tibial axis”.

70. This term is in part defined by words of claim 53, which specify the second axis as spaced from and substantially parallel to the first axis. The term is otherwise understood to have the meaning stated above for substantially the same reasons as explained above with respect to the “first axis”. The only difference in meaning with the “second axis” as compared to the first is the use of the identifier “second” to distinguish it as a distinct location from the first axis.

71. The second axis is thus a location at which the second loading is assessed to permit the first release to occur, as described, for example, at in columns 7 and 8 (pivot axis 616 in particular) and in the bottom of column 16 on to column 17 in the discussion of the two distinct locations for sensing lateral forces.

72. Head once again finds it impossible to understand the meaning of “second axis” just as it was unable to understand “first axis”. I disagree that the term “second axis” could not be understood by a person of ordinary skill for the same reason as explained above with respect to “first axis”.

6. “first loading”	
VSD	HEAD
A torque, moment or force resolvable at the first axis in response to an externally applied load on the ski	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

73. The term "first loading" appears in claims 53 and 58 of the Ettlinger Patent. This term is part of the same larger claim limitations as quoted above with respect to the term “first axis,” specifically, “assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system ...”in claim 53 and “a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system, exceeds a first defined level and has a first defined sense...” in claim 58.

74. In my opinion, a person of ordinary skill, at the time of invention, would understand "first loading" as used in claims 53 and 58 to mean a torque, moment or force resolvable at the first axis in response to an externally applied load on the ski.

75. The starting point for understanding this term is the fact that the word “load” is a common and well-understood word in generally all mechanical design and engineering fields, including the design and manufacture of ski bindings. “Loading” is just another form of the word “load” with the same plain and ordinary meaning as referring to a load applied in or to a system, which can be in the form of a torque, moment or force.

76. Further, a person of ordinary skill in the art, who is familiar with the relevant standards, such as ASTM F939 and F504 would be very familiar with the concept of loadings acting on ski systems and the causal relationship between different loadings and binding release. For example, ASTM standard F504 describes a number of different “combined loading” tests for measuring release moments in alpine ski bindings and describes “six points of load application”

that are required for the standard test. As stated therein, the F504 standard describes a test method that “involves simulation in the laboratory of potential injury-producing loads that can occur during skiing.” (see ¶ 5.1). ASTM standard F939 also discusses injury-producing loads in the introduction. Both standards discuss the loads variously in terms of torques, moments and forces applied to the ski.

77. Another relevant standard that discusses loadings applied to ski systems as related to binding release is ISO 9465 Alpine Ski Bindings – Lateral Release under Impact Loading-Test Method.

78. In this case, the loading is identified as the “first loading” because as stated in the claims it is assessed relative to or at the “first axis.”

79. Further, while a person of ordinary skill would understand the basic statics problem of resolving a force acting perpendicular to a horizontal axis (e.g. the central longitudinal axis 112 of a ski), the specification of the Ettlinger patent also explains resolving net forces at specific locations along the ski in column 5. Another explanation of the same concept but using a different type of example is provided with respect to the electronic binding example shown in FIG. 24 and described at column 17 on to column 18.

80. This definition is also supported by the discussion of resolving lateral shear forces at a location along the ski in column 4 and again in the middle of column 5, in column 7 and on to column 8, as well as in columns 9, 11, 16 and 17, among other places.

81. I understand that once again Head finds it impossible to understand the meaning of this relatively simple claim term involving the well-known term “loading.” I disagree that a person of ordinary skill in the art could not understand this term and see no basis for this

assertion by Head. In my opinion the term is easily understood based on the general knowledge of persons of ordinary skill in the relevant art for the reasons explained above.

7. “second loading”	
VSD	HEAD
A torque, moment or force resolvable at the second axis in response to an externally applied load on the ski	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

82. The term "second loading" appears in claims 53 and 58 of the Ettlinger Patent. This term is again part of the same larger claim limitations as quoted above with respect to the term “second axis,” specifically, “assess, relative to a second axis, spaced from said first axis and substantially parallel to said first axis, a second loading internal to the ski system caused by the external loading applied to the ski system ...” in claim 53, and “a second loading, internal to the ski system along or about a second axis and caused by the external loading, exceeds a second defined level and has a second defined sense...” in claim 58.

83. In my opinion, a person of ordinary skill, at the time of invention, would understand "second loading" as used in those claims to mean a torque, moment or force resolvable at the second axis in response to an externally applied load on the ski.

84. The basis for my opinion on the meaning of “second loading” is the same as the basis explained above with respect to “first loading” The only difference is the different identifying word (“second” instead of “first”) which a person of ordinary skill would understand as simply an identifier used to indicate that the two loadings are different loadings.

85. I also again disagree with Head’s assertion that a person of ordinary skill could not understand the meaning of this claim term for the same reasons as explained above with respect to “first loading.”

8. “assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the system”	
VSD	HEAD
provide an indication of or a response to a magnitude and direction of the first loading at the first axis by permitting or causing movement of one or more mechanical components or creating an electronic signal when an external load, such as an impact on the snow, is applied to the ski	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

86. The claim limitation "assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system" appears in claim 53 of the Ettlinger Patent as part of the larger combination of limitations that reads:

said ski binding assembly configured to:
assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system; and
assess, relative to a second axis spaced from said first axis and substantially parallel to said first axis, a second loading internal to the ski system caused by the external loading;

87. This claim limitation as a whole includes a number of distinct terms, two of which (“first axis” and “first loading”) are already defined above. A third distinct term is the further description of the “first loading” as being “internal to the ski system caused by an external loading applied to the ski system.”

88. This latter term (“internal to the ski system...”) refers to loads acting on and between parts of the ski binding assembly as a result of a load applied externally to the ski system such as by impact of a ski edge on the snow. The concept of internal loads within a system created by a load applied externally to the system is a well-understood concept in the design of mechanical systems. It is a concept inherent in the determination of release moments as described in ASTM standard F504. It is also inherent in the determination of release/retention

values under ISO 9465 Alpine Ski Bindings – Lateral Release Under Impact Loading – Test Method.

89. The term “assess” is used in this limitation in the sense of its plain and ordinary meaning of to determine something, such as a rate or amount. It is important to understand, as would a person of ordinary skill, that the assessment or determination called for in this claim limitation does not require that a specific value be measured in a quantitative sense and displayed in some form. In the mechanical and electrical binding systems described in the Ettlinger patent, the assessment or determination involves occurrence of an action, either the trigger or release being actuated, in response to the internal load exceeding its threshold setting.

90. Based on this general knowledge of persons of ordinary skill in the art and the specific examples described in the Ettlinger patent cited below, in my opinion, the person of ordinary skill, at the time of invention, would understand this claim limitation as used in claim 53 to mean “provide an indication of or a response to a magnitude and direction of the first loading at the first axis by permitting or causing movement of one or more mechanical components or creating an electronic signal when an external load, such as an impact on the snow, is applied to the ski”.

91. This definition is supported by, for example, the explanation of trigger torque sensing in column 8, which occurs at or around trigger pivot axis 624, the discussion of trigger torque and attenuated release torque as shown in FIGS. 7 and 8, also in column 8, the discussion of trigger torque assessment in column 9 and on to column 10, the discussion of the trigger mechanism for the embodiment shown in FIGS. 12-16 in columns 12-15, and in particular the trigger mechanism 1424 and pivot axis 1444 of the trigger mechanism, and the discussion of the

force sensor locations in the electronic binding embodiment shown in FIGS. 22-24 and discussed in columns 16 and 17.

92. I understand that once again Head finds it impossible to understand the meaning of this claim limitation. I disagree that a person of ordinary skill could not understand or not be reasonably certain of the meaning and scope of this limitation and can see no basis for Head's assertion of indefiniteness.

9. “assess, relative to a second axis spaced from the first axis and substantially parallel to the first axis, a second a loading internal to the ski system caused by the external loading”	
VSD	HEAD
provide an indication of or a response to a magnitude and direction of the second loading at the second axis by permitting or causing movement of one or more mechanical components or creating an electronic signal when an external load, such as an impact of the snow, is applied to the ski	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

93. The claim phrase “assess, relative to a second axis spaced from the first axis and substantially parallel to the first axis, a second a loading internal to the ski system caused by the external loading ” appears in claim 53 of the Ettlinger Patent as part of the larger combination of limitations that reads:

said ski binding assembly configured to:

assess, relative to a first axis, a first loading internal to the ski system caused by an external loading applied to the ski system; and

assess, relative to a second axis spaced from said first axis and substantially parallel to said first axis, a second loading internal to the ski system caused by the external loading;

94. This claim limitation is the same as the prior limitation except that it applies to the second axis and second loading rather than the first. Thus, in my opinion, a person of ordinary skill, at the time of invention, would understand this claim limitation as used in claim 53 to mean “provide an indication of or a response to a magnitude and direction of the second loading at the second axis by permitting or causing movement of one or more mechanical components or creating an electronic signal when an external load, such as an impact of the snow, is applied to the ski” the same reasons as explained above with respect to the preceding claim limitation from claim 53.

95. I also disagree with Head's asserted inability to understand the meaning of this claim limitation for the same reasons explained above.

10. “determine whether or not the release condition is occurring as a function of both of the first loading and the second loading”	
VSD	HEAD
binding assembly release logic indicating occurrence or nonoccurrence of the release condition dependent upon the assessments of the first loading and second loading	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

96. The claim limitation "determine whether or not the release condition is occurring as a function of both of the first loading and the second loading" appears in claim 53 of the Ettlinger Patent as a part of the larger sequence of limitations as follows:

wherein said release logic is configured to:
determine whether or not the release condition is occurring as a function of both of the first loading and the second loading; and
cause said ski binding assembly to provide said first release if the release logic determines that the release condition is occurring;

97. The meaning of this claim limitation is largely defined by the three previously defined claim terms contained within it (release condition, first loading and second loading) and further by the reference to the previously defined claim term (release logic) in the preceding claim phrase. The definitions of these terms would inform the person of ordinary skill as to the meaning of the larger limitation under consideration here.

98. The only undefined words in this claim limitation are “determine whether or not [defined term] is occurring as a function of...” There is no special meaning given to these words, which would be understood according to their plain and ordinary meaning.

99. It is to be noted that the plain and ordinary meaning of the word “determine” is essentially the same in the context of the Ettlinger Patent as “assess”, which is explained above. -

100. Thus, for these reasons, it is my opinion that a person of ordinary skill in the art, at the time of invention, would have understood this claim limitation to refer to the binding

assembly release logic indicating occurrence or nonoccurrence of the release condition dependent upon the assessments of the first loading and second loading. The occurrence or nonoccurrence is indicated by whether or not the first release is activated, which happens when the release condition is determined to occur.

101. Support for this interpretation is found in the Ettlinger Patent as well as in other intrinsic and extrinsic evidence as set out above in the incorporated claim terms defined above.

102. I understand that Head asserts that this claim limitation again has no meaning or could not be understood by a person of ordinary skill. I again disagree with this assertion for the same reasons I disagree that the incorporated terms cannot be defined or understood as stated above.

11. “a second release”	
VSD	HEAD
A mechanism of the ski binding assembly that allows lateral separation of the ski boot from the ski automatically and without skier intervention (i.e., releases) in response to a predetermined external loading of the ski correlated to an estimated maximum tibial axis load level selected to lessen the likelihood of tibial shaft injuries such as tibial spiral fractures.	A second lateral toe release, i.e., a second release of the ski boot from the toe piece of the binding in a transverse direction substantially perpendicular to the longitudinal axis of the ski.

103. The term "a second release" appears at the end of each of claims 53 and 58 of the Ettlinger Patent, and in each case, it is stated relative to the defined term “first release” wherein the first release is an “attenuated release” (another term defined below) relative to the second release.

104. In my opinion, a person of ordinary skill, at the time of invention, would have considered "a second release" as used in the claims of the Ettlinger Patent to mean a mechanism of the ski binding assembly that allows lateral separation of the ski boot from the ski automatically and without skier intervention in response to a predetermined external loading of the ski correlated to an estimated maximum tibial axis load level selected to lessen the likelihood of tibial shaft injuries such as tibial spiral fractures.

105. The reasons for my opinion on this term and the support therefor is largely the same as set forth above with respect to the term “a first release” except that clearly, because the first release is stated in the claim and specification to be an attenuated release relative to the second release, the second release refers to a mechanism that provides a conventional release selected in accordance with ASTM standard F939 and the release moment measurement

methodology set out in ASTM standard F504. ISO standard 9462 on the requirements of alpine ski bindings is also applicable to the understanding of this term.

106. I understand that Head asserts that the term "a second release" should mean "a second lateral toe release, i.e., a second release of the ski boot from the toe piece of the binding in a transverse direction substantially perpendicular to the longitudinal axis of the ski." I disagree with this interpretation because it does nothing to distinguish the first release as defined by Head from the second release. An important feature of the inventions described and claimed in the Ettlinger patent is the relative attenuation of the first release relative to the second release and that the second release described is activated at torque values generally in accordance with standard values for conventional alpine ski bindings and that the first release is at lower values because of the attenuation. The definition offered by Head does not take that into account. Head's definition is also overly restrictive because the Ettlinger patent very clearly describes that the lateral releases may be performed by toe or heel pieces. See, for example, the bottom of column 6 with reference to FIGS. 3 and 4, and the first half of column 17 wherein alternatives using heel release or combinations of heel and toe release are described.

12. “attenuated release”	
VSD	HEAD
A lateral release of the ski binding assembly that occurs at lower tibial axis loading relative to another release	A lateral toe release wherein the torque exceeds a lower release threshold or level.

107. The term "attenuated release" appears in claims 53 and 58 of the Ettlinger Patent as descriptive of the relative relationship between the first release and second release, both terms that are defined above: “wherein said ski binding assembly has a second release, said first release being an attenuated release relative to said second release.”

108. The plain and ordinary meaning of the word “release” on its own as understood by persons skilled in the art is explained above in connection with the discussion of “a first release” and equally applies here. The word “attenuated” has a plain and ordinary meaning of a value such as a force or magnitude being lessened relative to a comparison value.

109. In my opinion, a person of ordinary skill, at the time of invention, would have understand "attenuated release" as used in the claims of the Ettlinger Patent to mean “a lateral release of the ski binding assembly that occurs at lower tibial axis loading relative to another release”.

110. This understanding of the term is based the plain meaning of the words interpreted in the context of the Ettlinger patent, which is specifically focused on providing a lateral release at a tibial torque value that is attenuated with respect to conventional release torque values as specified in ASTM standard F504 in order to protect against ACL injury as described explicitly. In just one example, column 7, lines 15-23.

111. Further support for this interpretation is also provided, for example, in the Abstract, in FIGS. 2-5 and 7-8 and related descriptive text in the specification, in column 7 and

in the discussion trigger trip torque and attenuated release torque determination at the bottom of the column 17 on to column 18.

112. I understand that Head asserts that the term "attenuated release" should mean "a lateral toe release wherein the torque exceeds a lower release threshold or level." I disagree with this interpretation because it is limited to a toe release when the Ettlinger patent very clearly describes alternative embodiments employing heel releases in at least column 17. Head's proposed definition is also incorrect because the attenuated release is not any release of any random lower value but specifically a release that is attenuated with respect to tibial axis loading to protect against ACL injury as explained above.

13. “said first release is at least 20% less than said second release”	
VSD	HEAD
“The tibial axis torque at the first release is at least 20% less than the tibial axis torque at the second release	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

113. The claim limitation "said first release is at least 20% less than said second release" appears in dependent claim 54 of the Ettlinger Patent (dependent upon claim 53). In my opinion, a person of ordinary skill at the time of invention would understand this claim limitation to mean that “the tibial axis torque at the first release is at least 20% less than the tibial axis torque at the second release”.

114. This definition is based on the definitions of the terms “first release” and “second release” as explained above, each of which involves a release of the binding mechanism at a specified tibial torque value. The rest of this limitation merely states “at least 20% less” which is interpreted according to its plain and ordinary meaning as being at least 20% less.

115. This definition is also supported by, for example, by the description of the release torque attenuation shown in FIG. 5 as being a “20-50% Attenuation.” See also examples of release torque relative values given as a percentage of recommended release torque in the table at the bottom of column 7 and the related discussion in above the table in column 7.

116. I fail to understand how Head can take the position that it cannot understand or define this term when it has offered definitions of both the first release and the second release, and also proposed a definition of “attenuated release” that acknowledges that recited releases occur with one torque value less than another. Given these definitions, it appears that Head’s inability to define this term is based on an inability to understand the phrase “at least 20% less.”.

14. “wherein said first release is a first release torque about a tibial axis of a skier ... and said second release is a second release torque about a tibial axis...”	
VSD	HEAD
The torque experienced at the tibial axis at binding release settings of the first release is the first release torque and the torque experienced at the tibial axis is at binding release settings of the second release is the second release torque.	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

117. The claim limitation “wherein said first release is a first release torque about a tibial axis of a skier ... and said second release is a second release torque about a tibial axis ...” appears in dependent claims 55 and 59 of the Ettlinger Patent. This claim limitation includes the already defined terms “first release” and “second release” which would be understood in this limitation to have the same meanings as explained above in paragraphs 39-47 and 103-105.

118. In my opinion, a person of ordinary skill in the art, reading this claim limitation in the context of the entire Ettlinger Patent, would understand that there are two minor typographical errors in this claim in that the word “at” was omitted between “is” and “a” in two places. In other words, a person of ordinary skill would understand that “the first release is at a first release torque” and “the second release is at a second release torque.” With this understanding, the meaning of this term is literally just what it says.

119. The specification describes clearly that the first release is activated at a release torque that is less than the release torque required for activating the second release in order to allow the first release to be the ACL protective release. This teaching is clearly presented through the release envelope diagrams in FIGS. 2-5, the release thresholds plotted in FIG. 7 and the attenuation factors for the attenuated first release plotted in FIG. 8. The table at the bottom of column 7 also provides a numerical example of the release torque for the conventional, second

release and the attenuated release torque for the first release relative to (as percentages of) recommended release torques selected in accordance with ASTM standards F504 and F939.

120. This definition is also supported by the discussion of torque calculations and trigger and attenuated release torques at the bottom of column 17 on to column 18 with reference to FIG. 24.

121. I understand that Head has again asserted that this claim limitation is indefinite under § 112 of the patent law." I disagree with this assertion because, as I explained above, the typographical errors in this claim are easily identified and understood such that a person of ordinary skill would find no ambiguity in this claim language.

15. “wherein said first release torque is at least 20% less than said second release torque”	
VSD	HEAD
Plain meaning: the first release torque (as defined above) is lower than the second release torque (as defined above) by 20% or more	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

122. The claim limitation "wherein said first release torque is at least 20% less than said second release torque" appears in dependent claims 56 and 60 of the Ettlinger Patent, which depend from dependent claims 55 and 59, respectively. The individual claim terms “first release torque” and “second release torque” as used in claims 55 and 59 are defined in the preceding section and those definitions are applied here based on the dependency relationship between the respective claims and for the same reasons as explained above.

123. Given the definitions of “first release torque” and “second release torque, in my opinion, a person of ordinary skill at the time of invention would understand this limitations according to the plain and ordinary meaning of “lower than” and “by 20% or more” to mean exactly what it says: that the first release torque is at least 20% less than said second release torque.

124. This definition is also supported by the description of the release torque attenuation shown in FIG. 5 as being a “20-50% Attenuation.” See also examples of release torque relative values given as a percentage of recommended release torque in the table at the bottom of column 7 and the related discussion in above the table in column 7.

125. I understand that Head once again asserts that this term is indefinite and can therefore not be defined. I disagree because I find no difficulty understanding and interpreting this claim limitations as described immediately above.

16. “said release logic set to activate said first release substantially only when”	
VSD	HEAD
The release logic enables the first release when both of the loading conditions set forth thereafter in the claim are satisfied. “substantially only” addresses the fact that no ski binding system is 100% accurate and as such an expected small amount of false releases may occur but the occurrence of such false releases does not cause a ski binding that otherwise meets the requirements of the claim to fall outside the claim	[edited to remove legal argument and cases] “Means plus function term subject to § 112, ¶ 6. Thus, this limitation must be construed to cover the corresponding structure, material, or acts described in the specification. Although this term does not use the word “means,” it should be construed as means-plus-function terms because it does not “‘recite sufficiently definite structure’ or else recite[] ‘function without reciting sufficient structure for performing that function.’” The term “is a “nonce” term, ... and does not, standing alone, connote any particular structure. Function: laterally releasing the toe of the ski boot from the ski binding substantially only under certain loading conditions. Structure: A secondary toe release secured to a trigger platform, pivotable substantially only in one direction, wherein a triggerable latch mechanism is also pivotably secured to a trigger platform and includes a latch that will release a catch on the secondary toe release substantially only under a torque exceeding a threshold or level, allowing the secondary toe release to pivot freely to release the toe of the ski boot.

126. The phrase " said release logic set to activate said first release substantially only when" is a portion of a larger limitation that appears in claims 58 of the Ettlinger Patent. I understand that this specific limited portion of the larger claim limitation was proposed by Head for interpretation. In my opinion, it does not make sense and is not possible to interpret this somewhat random group of words outside of the context of the larger claim limitation from claim 58, which is quoted in its entirety in paragraph 133 below.

127. I further note that this proposed “term” includes two claim terms already defined above: “release logic” and “first release”. Thus, the interpretation of this claim phrase incorporates the definitions of those claim terms as explained above.

128. In my opinion, a person of ordinary skill would understand the use of “substantially only” in this claim phrase as addressing the fact that no ski binding system is 100% accurate and as such an expected small amount of false releases may occur but the occurrence of such false releases does not cause a ski binding that otherwise meets the requirements of the claim to fall outside the claim.

129. With these understandings, in my opinion, a person of ordinary skill at the time of invention would interpret the word “activate” according to its plain and ordinary meaning such that the meaning of complete phrase would be understood as The release logic enables (activates) the first release when both of the loading conditions set forth thereafter in claim 58 are satisfied.

130. I understand that Head asserts that this claim phrase should be interpreted as a “means plus function” claim. As stated above, while I have no opinion on the legal analysis offered by Head as part of its proposed definition, I do disagree with the factual premises stated as explained above in paragraphs 53 and 54. As stated therein, I also disagree that the function of the release logic is limited to releasing the toe. Further, I disagree with the statement of structure provided by Head for this claim phrase as it appears to be limited to the structure of just one embodiment disclosed in the Ettlinger Patent. For example, the structure described by Head completely omits any aspects of the embodiments shown in FIGS. 22-24 and discussed at columns 16-18.

17. “a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system”	
VSD	HEAD
“first loading” and “first axis” defined above “internal to the ski system” defined above Given constructions above no further definition required.	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

131. The term “a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system” as appears in claim 58 of the Ettlinger Patent is made up of three claim terms already defined above in paragraphs 62-66, 73-80, and 86-91. In my opinion no further definition of these terms is needed simply because the words are excerpted somewhat randomly by Head from the longer limitation in which they are presented in claim 58. The support for these definitions is also as stated above with respect to each included defined term.

132. I also disagree with Head’s assertion that this claim limitation is indefinite and cannot be interpreted for the reasons stated above.

18. “exceeds a first defined level and has a first defined sense”	
VSD	HEAD
“Exceeds” means greater than (plain meaning) “first defined level” is a magnitude of the first loading corresponding to a release setting of the binding at the defined release condition “first defined sense” is the direction of the first loading corresponding to a release setting of the binding at the defined release condition	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

133. The claim phrase “exceeds a first defined level and has a first defined sense” is a phrase that appears to have been arbitrarily excepted by Head from claim 58. The claim phrase listed here is part of a larger, complete claim limitation that reads:

said release logic set to activate said first release substantially only when:
a first loading, internal to the ski system along or about a first axis and caused by an external loading applied to the ski system, exceeds a first defined level and has a first defined sense; and
a second loading, internal to the ski system along or about a second axis and caused by the external loading, exceeds a second defined level and has a second defined sense

134. The phrase “exceeds a first defined level and has a first defined sense: cannot be understood in the abstract without consideration of the context and entire claim limitation within which they appear. The phrase is also made up of three separate terms which must be defined separately to understand the meaning of the entire phrase in its larger claim limitation context. Those three terms are “exceeds,” “first defined level” and “first defined sense.”

135. The term “exceeds” requires no special definition here and would be understood by a person of ordinary skill according to its plain and ordinary meaning of “greater than”.

136. The term “first defined level” as presented in the larger claim limitation is a reference to a level of the first loading. This would be understood based on general reading comprehension skills and the order of presentation and proximity of the words. A plain and

ordinary meaning of the word “level” is as a magnitude or amount. Thus, the “first defined level” refers to a magnitude or amount of the first loading that is defined ahead of time.

137. The term “first defined sense” as presented in the larger claim limitation is a reference to the direction of the first loading. This would again be understood based on general reading comprehension skills and the order of presentation and proximity of the words. A plain and ordinary meaning of the word “sense” in the context of engineering and mechanics is as a direction of an applied force or moment. Thus, the “first defined sense” refers to the direction of the first loading that is defined ahead of time, specifically a loading that results from external force application on the inside edge of the ski behind the skier’s boot, in other words a third quadrant applied force as described in column 8.

138. The overall claim phrase presented here, as stated in the claim, and as explicitly described in the first part of column 8, refers to one of the two criteria defined by the release logic for activation of the first release, with “release logic” and “first release” being defined as above.

139. This definition is also supported by the plots of release envelopes, release torque thresholds, and attenuation factor in FIGS. 2-5 and 7-8 and accompanying descriptive material.

140. I do not understand why Head would assert that this claim phrase is undefinable or indefinite because, as explained above it is made up of terms commonly used and well-understood in engineering and mechanics.

19. “a second loading, internal to the ski system along or about a second axis and caused by the external loading”	
VSD	HEAD
“second loading” and “second axis” defined above “internal to the ski system” defined above Given constructions above no further definition required.	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

141. The term “a second loading, internal to the ski system along or about a second axis and caused by the external loading” as appears in claim 58 of the Ettlinger Patent is again made up of three claim terms already defined above in paragraphs 68-71, 82-84, and 86-91. In my opinion no further definition of these terms is needed simply because the words are excerpted somewhat randomly by Head from the longer limitation in which they are presented in claim 58. The support for these definitions is also as stated above with respect to each included defined term.

142. I also disagree with Head’s assertion that this claim limitation is indefinite and cannot be interpreted for the reasons stated above.

20. “exceeds a second defined level and has a second defined sense”	
VSD	HEAD
“Exceeds” means greater than “second defined level” is a magnitude of the second loading corresponding to a release setting of the binding at the defined release condition “second defined sense” is the direction of the second loading corresponding to a release setting of the binding at the defined release condition	No meaning offered, instead argued only to be indefinite under § 112 of the patent law.

143. The claim phrase "exceeds a second defined level and has a second defined sense" appears in claims 58 of the Ettlinger Patent as part of the same longer claim limitation discussed above in paragraphs 133-139 with respect to claim term #18. This grouping of words as selected by Head includes the same words in the same order as the term discussed above except that “second” is substituted for “first” throughout.

144. For these reasons, in my opinion, a person of ordinary skill at the time of invention would have considered this claim phrase to have the same meaning as the claim phrase in term #18 above except that this claim phrase refers to a second it refers to a second set of conditions defined by the release logic for activation of the first release, with “release logic” and “first release” being defined as above.

145. I also disagree with Head’s asserting that this claim phrase has no meaning or cannot be defined because it is indefinite for the same reasons explained above.

XI. Supplementation

146. I reserve the right to supplement this report based on additional information as it may become available, including, for example, Head's claim construction arguments and any opinions offered by any other experts in this proceeding.

I, Jasper E. Shealy, state that the foregoing is a true and correct statement of my opinions on the matters discussed herein.

Dated: June 14, 2024

/Jasper E. Shealy/
Jasper E. Shealy, Ph.D., CPE

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