UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff(s), v. Marker Volkl USA, Inc., a New Hampshire Corporation Defendant(s).	)))) Case No. 2:15-cv-121-wks))))

Plaintiff KneeBinding, Inc.'s Opening Claim Construction Brief

KneeBinding, Inc. ("KneeBinding") submits this opening brief regarding the construction of certain terms of the claims of U.S. Patent No. 8,955,867 (the "'867 Patent"). KneeBinding is the assignee and owner of the '867 Patent. KneeBinding proposes that the Court construe the claims to mean what they say and adopt the plain and ordinary meaning of the claim terms for claim construction in this litigation.

TABLE OF CONTENTS

LIST OF AUTHORITIES

I. INTRODUCTION

It is a "bedrock principle" of patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004). Determining whether a product infringes a patent's claims requires a two-step process; first, the court interprets the patent claims, and second, the properly interpreted claims are compared to the accused product. *See Abbott Labs. v. Sandoz, Inc.,* 566 F.3d 1282, 1288 (Fed. Cir. 2009). In this first step, the Court must determine scope and meaning of the claims as a matter of law. *Markman v. Westview Instruments, Inc.,* 52 F.3d 967, 978-79 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). The court interprets the claims so that a jury can compare the properly construed claims to the accused product to determine infringement. Generally, the court construes the words of a claim to have their ordinary and customary meaning. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc).

The parties here present drastically different views on the need for the Court to interpret the '867 Patent's claims. Under the scheduling order, the parties first identified terms for claim construction and then provided proposals for the construction of each term. Dkt. #34. KneeBinding identified two terms it believes the Court needs to interpret to resolve the parties' dispute over the meaning of Claim 1. See Declaration of Bradley T. Fox in Support of Plaintiff KneeBinding's Opening Claim Construction Brief ("Fox Decl.") at ¶2 (Exhibit A). Defendant Marker Volkl USA ("Marker") identified 14 terms for interpretation. Fox Decl. at ¶3 (Exhibit B). KneeBinding is in essence stating that the claims of the '867 Patent do not need the Court's interpretation because the language has an ordinary meaning that can be easily ascertained in the context of the claim itself and the '867 Patent specification. On the contrary, Marker proposes to

rewrite the claims to include additional claim requirements or simply to ask the Court to find that a claim term's meaning is indefinite. Defendants often seek to add requirements to a claim to attempt to avoid infringement.

The chart below outlines the parties' claim construction proposals:

Claim Term	KneeBinding Proposal	Marker Proposal
1. vector decoupling assembly for separating and isolating two or more force vectors	No construction is needed and the term should be given its plain and ordinary meaning.	The vector decoupling assembly separates and isolates vertical force vectors from lateral force vectors, so that a principally vertical force vector will not result in a release of a ski boot in a lateral direction, and a principally lateral force vector will not result in release of a ski boot in a vertical direction.
2. safety binding	No construction is needed and the term should be given its plain and ordinary meaning.	Indefinite.
3. securing a heel portion of a ski boot to a ski	No construction is needed and the term should be given its plain and ordinary meaning.	The safety binding secures a heel portion of a ski boot to a ski.
4. lower heel assembly	No construction is needed and the term should be given its plain and ordinary meaning.	The lower heel assembly attached to the ski, and does not have any components or parts in common with, the upper heel assembly
5. upper heel assembly	No construction is needed and the term should be given its plain and ordinary meaning.	The upper heel assembly is coupled to, but does not have any components or parts in common with, the lower heel assembly.
6. having a lateral release assembly for applying lateral securing pressure to the ski boot	No construction is needed and the term should be given its plain and ordinary meaning.	Indefinite.
7. linkage element	An element that allows free-coupling between the upper heel assembly and the lower	Indefinite.

	heel assembly	
8. fixedly attached	The linkage element cannot be detached without damaging or breaking the ski binding	The "linkage element" is attached to the lateral release assembly in a fixed manner such that it cannot be removed without destroying or damaging the safety binding.
9. wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski	No construction is needed and the term should be given its plain and ordinary meaning.	"a first surface": Indefinite. "a second surface": Indefinite. Motion of the lateral release assembly is limited, to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski, by only the "linkage element," a "first surface," and a "second surface."
10. maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly	No construction is needed and the term should be given its plain and ordinary meaning.	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.
11. the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position	No construction is needed and the term should be given its plain and ordinary meaning.	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.
12. motion of the lateral release assembly is at least partially rotational	No construction is needed and the term should be given its plain and ordinary meaning.	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.
13. a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear	No construction is needed and the term should be given its plain and ordinary meaning.	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.
14. a relationship between a	No construction is needed and	In view of Plaintiff's

position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear	the term should be given its plain and ordinary meaning.	Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.

(Fox Decl. ¶¶4, 5 (Exhibit C and Exhibit D)). Marker's approach is contrary to the established claim construction rules. The claims mean what they say and define the scope of the invention. *See Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, at 1115. The Court should adopt KneeBinding's proposed constructions of the claim terms and find that the claim terms should be interpreted to have their ordinary meaning.

II. BACKGROUND

A. The Court determines the meaning of the claims during claim construction.

Claim construction takes place within the context of several principles articulated in controlling precedence. Claim construction begins with the language of the claim. *See Phillips v. AWH Corp.*, 415 F.3d at 1312 ("[T]he claims are of primary importance, in the effort to ascertain precisely what it is that is patented."). The words of a claim should "generally be given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d at 1312.

The Court must presume that claim terms mean what they say, "and unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms." *Tate Access Floors, Inc. v. Interface Architectural Res., Inc*., 279 F.3d 1357, 1370 (Fed. Cir. 2002). Furthermore, the Court should avoid adding limitations that are not recited in the claims. *See Phillips v. AWH Corp.*, 415 F.3d at 1320. It is a "cardinal sin" of patent law to read limitations into the claims from the specification. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001). Thus, Defendant Marker's proposed rewriting of the claim fails the rules set forth by the Federal Circuit. KneeBinding's proposals properly start and

end with the language of the claims themselves. The Court should not undertake the task of rewriting the claims. The Court should give full effect to the claim language.

B. '867 Patent relates to ski bindings.

The '867 Patent relates to ski bindings and particularly ski bindings where the heel unit of the ski binding retains and releases a ski boot in both an upward, vertical direction and a lateral, horizontal direction. See Fox Decl. at ¶6 (Exhibit E), the '867 Patent; Abstract; Col. 3, ll. 45-52. The court has advised that knowledge of the accused product provides context for claim construction. *Wilson Sporting v. Hillerich Bradsby*, 442 F.3d 1322, 1326 (Fed. Cir. 2006). Both KneeBinding's ski bindings and the accused Marker Kingpin ski binding ("Accused Binding") have a heel unit that retains/releases a ski boot in both a vertical direction and a lateral direction.

1. Typical ski binding

Typically, ski bindings are designed to secure a ski boot to a ski for skiing, yet release the ski boot from the ski when forces on the binding are great enough that the skier may become injured in a situation such as a fall. Fox Decl. at ¶6 (Exhibit E), the '867 Patent; Col. 1, ll. 18-54. Common ski bindings have a twisting or lateral retention/release assembly at the toe unit of the ski binding and in a vertical or upward retention/release assembly at the heel unit of the binding. *Id*.

2. Prior ski binding heel units with both vertical and lateral release/retention assemblies

Prior ski binding heel unit designs that contained both vertical and lateral retention/release assemblies suffered from an undesirable relationship between the two mechanisms. Fox Decl. at ¶6 (Exhibit E), the '867 Patent; Col. 3, ll. 8-23. In other words, forces that may contribute to a desired vertical release may also contribute to an unwanted lateral release instead of retention by the lateral release assembly. *Id*. The two retention/release assemblies in these earlier bindings

were not separated and isolated from each other. *Id*. The forces on a binding affecting retention and release in one direction could negatively influence or conflict with the forces controlling retention and release in the other direction. *Id*.

3. KneeBinding's Patented Heel Unit

KneeBinding was founded upon the invention of a heel unit that separates the forces affecting the vertical retention/release assembly from the lateral retention/release assembly. Fox Decl. at ¶7 (Exhibit F). KneeBinding is located in Stowe, VT. *Id*. The two retention/release mechanisms in KneeBinding's '867 Patent are separated and isolated from each other such that the forces acting on the vertical retention/release assembly do not influence or conflict with the forces acting on the lateral retention/release assembly. Fox Decl. at ¶6 (Exhibit E), the '867 Patent; Col. 3, ll. 45-52.

4. The Accused Binding Heel Unit

The Accused Binding likewise includes a heel unit that retains and releases a ski boot heel in both the vertical direction and the lateral direction. Fox Decl. at ¶8 (Exhibit G). The Accused Binding also separates the forces acting on the vertical retention/release assembly from the forces acting on the lateral retention/release assembly such that the forces in one direction do not influence the forces in the other direction and *vice versa*. *Id*. The heel unit of the Accused Binding has a central post that in coordination with other portions of the binding keeps the vertical release assembly from tipping or tilting when releasing upward, but also controls the lateral release assembly to rotate around the circular post to release only in the lateral, horizontal direction. *Id*.

C. The United States Patent and Trademark office ("PTO") examined the '867 Patent application and issued a valid patent.

The PTO examined the '867 Patent application on five separate occasions prior to its issuance. See Generally Fox Decl. at ¶9 (Exhibit H). The '867 Patent is related to two earlier patents that were examined and allowed by the PTO. See Fox Decl. at ¶6 (Exhibit E). The '867 Patent is a continuation patent of U.S. Patent No. 7,887,084, which is a divisional of U.S. Patent No. 7,318,598. *Id*. This means that the back and forth examination in the PTO of all three patents is relevant to the understanding of the '867 Patent. The patent office issued the '867 Patent on February 17, 2015. *Id*. An issued patent is presumed valid. 35 U.S.C. § 282.

The PTO examiner reviewed the claims of the '867 Patent against prior ski bindings that purported to feature vertical and lateral retention/release features. Fox Decl. at ¶9 (Exhibit H). In its first review, the examiner rejected the claims of the application under 35 U.S.C. §112 as indefinite because the terms "the first surface" and "the second surface" lacked antecedent basis. Fox Decl. at ¶9 (Exhibit H, pgs. 1-5). This is essentially a technical rejection that is proper if an application uses the introductory article "the" instead of "a" the first time a claim term is recited. *Id*. The examiner also rejected the claims as anticipated under 35 U.S.C. §102 by the Weigl et al. (US Patent 6,165,883) because the examiner believed the prior Weigl patent taught all aspects of the claimed ski binding heel unit. *Id*. Applicant KneeBinding resubmitted the application for consideration. Fox Decl. at ¶9 (Exhibit H, pgs. 6-12). The applicant fixed the indefiniteness issue regarding "a" versus "the" and argued successfully that Weigl did not anticipate. *Id*. The applicant also included new claims for consideration in the application. *Id*.

During round two at the PTO, the examiner rejected all the claims again. Fox Decl. at ¶9, (Exhibit H, pgs. 14-19). The examiner found new language indefinite under 35 U.S.C. §112, and the examiner again rejected the claims finding prior invention by Stritzl et al. (US Patent

4,858,946). *Id*. The examiner made these rejections final, so the applicant had to make a request for continued examination ("RCE"). Fox Decl. at ¶9 (Exhibit H, pgs. 20-26). During this RCE process, the applicant fixed the indefinite language, made arguments to overcome Stritzl, and resubmitted the claims for allowance. *Id*.

The examiner, however, rejected the claims again in round three for an entirely new reason. Fox Decl. at ¶9 (Exhibit H, pgs. 27-31). The examiner rejected claims under 35 U.S.C. §102 as being previously invented by Gertsch (US Patent 4,505,494). *Id*. Once again, applicants submitted arguments to overcome the Gertsch rejection and resubmitted the application to the examiner for review. Fox Decl. at ¶9 (Exhibit H, pgs. 32-38).

In round 4, the examiner maintained the Gertsch rejection. Fox Decl. at ¶9 (Exhibit H, pgs. 39-45). The examiner was not compelled by applicant's arguments that Gertsch did not previously disclose the claimed invention. *Id*. In response, applicant added language to the claims to more clearly recite a requirement that the heel unit apply a vertical, downward force on the ski boot. Fox Decl. at ¶9 (Exhibit H, pgs. 46-52). The applicant again resubmitted the applicant for examination.

In round 5, the examiner finally allowed the claims. Fox Decl. at ¶9 (Exhibit H, pgs. 53-59). At each step of the examination process, the examiner was able to ascertain the proper scope of the claims and compare the claims to prior ski bindings to determine whether the invention was novel. The examiner made two rejections for indefiniteness, but found that the applicant overcame those rejections. The examiner conducted five separate examinations of the application for the '867 Patent in light of prior inventions. In the end, the examiner, who is charged with being a gatekeeper of issued patents, did not find any terms of Claim 1 indefinite and did not require further explanation regarding any claim terms.

III. CLAIM CONSTRUCTION RULES

"A claim construction analysis must begin and remain centered on the claim language itself, for that is the language the patentee has chosen to particularly point out and distinctly claim the subject matter which the patentee regards as his invention." *Innova*, 381 F.3d at 1116. The Court should generally give the words of a claim their ordinary meaning. *See Phillips*, 415 F.3d at 1312. The "ordinary and customary meaning of a claim term 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." *Innova*, 381 F.3d at 1116. It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. *Phillips*, 415 F.3d at 1312-13. In this case, such person is deemed to read the words used in the patent documents with an understanding of their meaning in the context of ski bindings and skiing. *See Id*. This starting point is based on the well-settled understanding that inventors are typically persons skilled in the field of the invention and that patents are addressed to and intended to be read by others of skill in the pertinent art. *Phillips*, 415 F.3d at 1313.

The person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. *Multiform Desiccants, Inc. v. Medzam, Ltd.,* 133 F.3d 1473, 1477 (Fed. Cir. 1998). The court must construe claims consistent with the intrinsic evidence: a patent's specification and its prosecution history. *Phillips*, 415 F.3d at 1316-1317. A patent's prosecution history, like the specification, provides evidence of how the PTO and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. The Federal Circuit has viewed extrinsic evidence, or evidence external to the patent and prosecution history, as generally less reliable than the patent and its prosecution history in claim construction. *See Phillips,* 415 F.3d at 1318. Finally, although the court should construe the terms in light of the appropriate evidence, the

Court should avoid adding limitations from the patent that are not recited in the claims. *See Phillips*, 415 F.3d at 1320.

IV. THE PERSON OF ORDINARY SKILL IN THE ART ("POSITA")

KneeBinding asserts that a POSITA in this case has at least five years of ski binding design experience. Not only would the POSITA have an understanding of ski binding design, but the POSITA would also have an understanding of the need for a lateral retention/release mechanism, and the need to isolate the lateral retention/release mechanism from the vertical retention/release mechanism of a heel unit.

The background of the inventor, KneeBinding's unique position in the ski binding market, and Marker's claimed binding experience support the assertion that a POSITA would have at least five years relevant experience. The Inventor claims greater than ordinary skill in the art and over 30 years experience with skiing and ski bindings at the time of his invention. Fox Decl. at ¶10 (Exhibit I). KneeBinding is the only U.S. manufacturer of ski bindings, and it was the only manufacturer of a heel unit that clamps down on the boot with separate vertical and lateral retention/release assemblies until Marker offered the Accused Binding for sale. Marker boasts over 64 years of experience in ski binding design. Fox Decl. at ¶11 (Exhibit J). A POSITA reading the claims of this patent would have a high understanding of the meaning of the '867 Patent claims. Thus, the interpretation of the claim language below should be viewed through the eyes of a POSITA with five years ski binding design experience.

V. INTERPRETATION OF THE TERMS OF CLAIM 1

A. Description of Claim 1

As described above, ordinary safety binding heel units are designed to clamp the heel of the boot down to the ski for skiing, yet release vertically, *i.e.*, upwardly, to protect the skier in

certain falls. In addition to this typical vertical release assembly, Claim 1 adds another separate release assembly, a lateral release assembly.

Although Claim 1 recites a "vector decoupling assembly", in more common language this term in the context of the '867 Patent is more easily understood as a ski binding heel unit that separates the vertical retention/release forces from the lateral retention/release forces. Claim 1 recites elements of a ski heel unit with (i) a lower heel assembly attached to a ski, (ii) a upper heel assembly coupled to the lower heel assembly, (iii) wherein the upper heel assembly contains both a lateral release assembly to secure and release a boot in the lateral plane and an upper heel housing to compress the boot heel down to secure and release the boot vertically, (iv) a linkage element that couples the upper heel assembly and the lower heel assembly, and (v) a configuration where the linkage element and at least two surfaces cooperate to ensure that the lateral release assembly only moves in a longitudinal horizontal plane. The elements of Claim 1 are recited as follows:

> 1. A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:
>
> a lower heel assembly attached to the ski;
>
> an upper heel assembly coupled to the lower heel assembly and
>
> having a lateral release assembly for applying lateral securing pressure to the ski boot,
>
> the upper heel assembly comprising an upper heel housing that is configured to compress the heel portion of the ski boot downward;
>
> a linkage element fixedly attached to the lateral release assembly;
>
> wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

Although at first this language may look technical, in the context of a ski binding heel unit and the '867 Patent specification, a POSITA would clearly understand the meaning and scope of Claim 1.

B. KneeBinding's proposed claim constructions are true to the language of the Claim 1.

"A heavy presumption exists that claim terms carry their full ordinary and customary meaning, unless [a party] can show the patentee expressly relinquished claim scope." *Epistar Corp. v. Int'l Trade Comm'n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009). The court must presume that Claim 1 means what it says and "give full effect to the ordinary and accustomed meaning of claim terms." *Tate Access Floors, Inc. v. Interface Architectural Res., Inc*., 279 F.3d at 1370. These foundational principles of claim construction provide the basis for each of KneeBinding's proposed claim constructions. KneeBinding asserts the POSITA would understand the scope of the Claim 1 as written and neither Claim 1 nor the specification disavow or limit the scope of Claim 1. Marker asserts the claims of the '867 Patent cannot be understood by a POSITA without the Court's intervention. Marker's shotgun approach at rewording the claims of the patent should fail.

C. KneeBinding's proposals for the terms at issue in Claim 1

1. vector decoupling assembly for separating and isolating two or more force vectors – Term proposed by Marker for the Court's construction ("Marker's Term")

KneeBinding proposes that this term should be given its plain and ordinary meaning.

A POSITA would understand that this claim term is reciting an assembly that separates and isolates at least two force vectors. The words of the claim have ordinary meanings to a POSITA and are not subject to different interpretations or ambiguities. KneeBinding asserts that no reason exists to reinterpret them.

Marker proposes to rewrite the claim term adding additional language that does not appear in the claim:

> The vector decoupling assembly separates and isolates vertical force vectors from lateral force vectors, so that a principally vertical force vector will not result in a release of a ski boot in a lateral direction, and a principally lateral force vector will not result in release of a ski boot in a vertical direction.

Marker's proposal deviates from the plain language of the claim term and creates language much narrower than the patentee used for Claim 1. The Court should disregard marker's proposal and adopt KneeBinding's proposal.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "a heel unit of a ski binding for separating and isolating multiple forces."

2. safety binding – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

"Safety binding" is a term that needs no claim construction. A POSITA or a ski binding designer would clearly understand this term in the context of the '867 Patent; it's a ski binding that releases. The term should be given its ordinary meaning.

Marker asserts that "safety binding" is indefinite. The Supreme Court's standard for definiteness requires "that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2129 (2014). Marker's

position is untenable. A POSITA would understand the scope of the '867 Patent with reasonable certainty. The '867 Patent is replete with references to a ski binding that releases to prevent injury. Furthermore, the ski media recognizes the Accused Binding as a ski binding that meets international standards for safety. Fox Decl. at ¶12 (Exhibit K). The term "safety binding" needs no interpretation and should be construed to have its ordinary meaning.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "a ski binding that releases a ski boot under certain conditions."

3. securing a heel portion of a ski boot to a ski – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

A ski binding secures the heel of a boot to a ski for skiing. Again, a POSITA would certainly understand this point and understand the plain and ordinary meaning of these terms. KneeBinding is unsure as to why Marker believes that this term needs to be construed by the Court. Marker's proposes replacing the words of the claim with its own words. KneeBinding asserts that the claim term needs no construction.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction

be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "holding the heel portion of a ski boot in place for skiing."

4. lower heel assembly – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

KneeBinding asserts that the claim term "lower heel assembly" needs no interpretation. Claim 1 sets forth the only requirements for the "lower heel assembly": "a lower heel assembly attached to the ski". Marker asks the Court ignore this simple requirement and add an additional requirement that the lower heel assembly have no components in common with the upper heel assembly. Marker improperly reads into the claim new limitations not recited in Claim 1 by the Inventor. *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012)("We do not read limitations from the specification into the claims"). *Phillips* mandates that the language of the claims define the invention, and Marker's additional language should be rejected.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "a lower portion of a heel unit of a ski binding."

5. upper heel assembly – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

The "upper heel assembly" is yet another term that is fully delineated by Claim 1, but Marker wants this Court to rewrite it. The language of the claim should be construed to have its

ordinary meaning. The upper heel assembly has a lateral release assembly for applying lateral retaining force to secure the boot laterally, and an upper heel housing that compresses the boot heel downward. The Court should disregard Marker's additional requirement that the upper heel assembly have no common components with the lower heel assembly. Again, the claim language controls the scope of the invention, not Marker's proposal. The Court should not read in additional limitations to Claim 1. The court should construe the claim term to have its ordinary meaning.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "an upper portion of a heel unit of a ski binding."

6. having a lateral release assembly for applying lateral securing pressure to the ski boot – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

This claim language too needs no interpretation. A POSITA would know that this simply means that the upper heel assembly has a lateral release assembly to secure a ski boot. Marker asserts this term is indefinite. Claim 1 and the specification of the '867 Patent consistently discuss a ski binding heel unit with a lateral release assembly that both secures the boot for skiing and releases under loads that might otherwise cause an injury. *See e.g.*, Fox Decl. ¶6 (Exhibit E), '867 Patent; Col 3., ll. 45-67. Marker's Accused Binding has a heel unit that

performs these same retention and release functions. Common sense dictates that if a heel unit releases laterally, yet cannot retain a ski boot for skiing, it could not function as a ski binding.

The patent examiner reviewed this claim term during the '867 Patent application process and did not find the term indefinite. It appears Marker's desire to have this term construed as indefinite is a baseless attempt to invalidate the patent. The Court should conclude that this term should have its plain and ordinary meaning.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "an asssembly that applies pressure to resist the ski boot heel from moving laterally."

7. linkage element – Term proposed by both parties for construction ("Parties' Term")

From the beginning of the litigation, it was clear that the parties dispute the meaning of the Claim 1 term "linkage element". KneeBinding asserts that the "linkage element" links or couples the upper and lower heel assemblies and proposes that the Court construe the term "linkage element" to mean "an element that allows free-coupling between the upper heel assembly and the lower heel assembly." Marker again believes the term is indefinite.

KneeBinding asserts that the term itself, the surrounding language of the claim, and the specification support its proposed definition for the term "linkage element". First, the plain language of the term imparts a meaning understood by not only a POSITA, but by laypersons as well. The word "linkage" has a common meaning: linking or coupling. Moreover, the language

of Claim 1 requires the "upper heel housing coupled to the lower heel housing," and the "linkage element" is the only element that achieves this requirement. Further, the patent specification discusses free coupling of the lateral release assembly of the upper heel assembly to the lower heel assembly. Fox Decl. ¶6 (Exhibit E), '867 Patent ; Col. 8, ll. 25-37; Col. 8, ll. 50-54. The patent specification states "the vector decoupler assembly…also allows free coupling" of the lateral release cam of the upper heel assembly to the lower heel assembly. Fox Decl. ¶6 (Exhibit E), '867 Patent; Col. 8 ll. 25-37. Moreover, the specification states that the lateral release cam of the upper heel assembly has an "open linkage" to the lower heel assembly. Fox Decl. ¶6 (Exhibit E), '867 Patent; Col. 8, ll. 50-54. The language of the claim taken as a whole when combined with the language of the specification compels KneeBinding proposed construction of "linkage element".

Maker wrongly asserts that "linkage element" is indefinite. Again, standard requires "that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. at 2129. Often, claim terms of degree or subjective terms are found indefinite, e.g., the term "aesthetically pleasing" was found indefinite because the term is subjective. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342 (Fed. Cir. 2005). Here, it is clear that the "linkage element" is coupling the upper and lower heel assemblies and that it is attached to the lateral release assembly. The language properly delineates the scope of Claim 1.

Moreover, the patent examiner did not find the term indefinite during the application process. In fact, the examiner asserted on several occasions that prior inventions contained the claimed "linkage element". With multiple references to "coupling" and "linkage" in the claims and the specification, the Court should reject Marker's proposal that the claim term is indefinite.

A POSITA reading the term "linkage element" in the context of Claim 1 and the specification would have no problem ascertaining the terms meaning.

8. fixedly attached – Parties' Term

"Fixedly attached" is another term from Claim 1 that the parties have disputed from the beginning of the lawsuit. KneeBinding proposes that the Court construe "fixedly attached" to mean "the linkage element cannot be detached without damaging or breaking the ski binding." Marker's proposal again commits the error of rewriting the claim language": "the 'linkage element' is attached to the lateral release assembly in a fixed manner such that it cannot be removed without destroying or damaging the safety binding." The Court should adopt the proposal that stays most true to the claim language. Marker's claim rewrite should be rejected.

9. wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski – Marker's Term

KneeBinding proposes that this term should be given its plain and ordinary meaning.

The final term of Claim 1 is another term that can be easily understood by both a POSITA and a layperson. The linkage element, a first surface, and a second surface act together to limit the movement of the lateral release assembly in the longitudinal, horizontal plane. The linkage element and at least two surfaces cooperate so that lateral release assembly only moves laterally or horizontally even if the heel unit experiences vertical or upward forces or any diagonal forces. This language embodies the concept of the patent that the vertical force vectors are separated and isolated form the horizontal force vectors. A POSITA would surely understand this concept from a reading of the specification and Claim 1. The term is not indefinite, and the Court should construe the term to consistent with its ordinary meaning.

Marker's proposal that the claim is indefinite is inconsistent with the standard for indefiniteness. A POSITA would clearly understand the scope of the claim and the plain meaning of the claim terms. Further, there is no requirement that "only" the linkage element, a first surface and a second surface control movement of the lateral release assembly. Marker once again is importing limitations to the claim that do not exist in the claim as written. Marker's proposal violates both the indefiniteness standard and claim construction principles.

Lastly, the patent examiner analyzed both the terms "first surface" and "second surface" and issued the patent. Although the examiner first found the terms indefinite for technical reason, the examiner permitted the claim after the applicant fixed the issue. Furthermore, the examiner understood the scope of the claim element and asserted prior inventions disclosed the claim element as a whole. The examiner had no difficulty with the claim term and neither would a POSITA.

Although KneeBinding proposes that the claim term needs no additional interpretation and that the Court should adopt as a claim construction the term's plain and ordinary meaning, the Court may wish to provide a claim construction to resolve the parties dispute or simplify the term for the jury without adding additional limitations to the claim. Should further claim construction be necessary beyond the ordinary meaning of the claim, KneeBinding proposes the following definition: "the linkage element and at least two surfaces cooperate to ensure that the lateral release assembly only moves within a known region within a plane defined by the longitudinal and horizontal axes of the ski."

D. Construction of terms in dependent Claims 4-9 – Marker's Terms

Marker asserted a need to construe several additional terms that appear in asserted dependent Claims 4-9:

10. maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly;

11. the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position;

12. motion of the lateral release assembly is at least partially rotational;

13. a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear; and

14. a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

Marker, however, did not provide proposed constructions for any of these terms. It simply stated, "in view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term." KneeBinding asserts that the Court does not need to construe any of these terms. KneeBinding reserves the right to address these claim terms if and when Marker proposes a claim construction.

VI. CONCLUSION

KneeBinding believes that a POSITA would understand the language and scope of Claim 1 as written. One can easily ascertain the ordinary meaning of the terms of Claim 1 when they are read in the context of the claim itself and the specification of the '867 Patent. Further, the prosecution history of the application demonstrates that the examiner both understood the plain meaning of the claim terms, and understood the scope of the claim for comparison to the prior art ski bindings. The Court should reject Marker's scattershot approach that attempts to rewrite the claim to include additional claim requirements or find a term is indefinite. The Court should adopt KneeBinding's proposals.

///

Dated: December 23, 2016

FOX LAW GROUP, LLC
/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

ANDERSON & ASSOCIATES
Peter G. Anderson, Esq.
Attorney for KneeBinding, Inc.
P.O. Box 566
954 So. Main Street
Stowe VT, 05672
Telephone: (802) 253-4011
Facsimile: (802) 253-6061
pga@paglaw.com

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff, v. Marker Volkl USA, Inc., a New Hampshire corporation, Defendant.	No. 2:15-cv-00121-wks

CERTIFICATE OF SERVICE

I hereby certify that on December 23, 2016, I served a copy of Plaintiff KneeBinding Inc.'s Opening Claim Construction Brief on the Attorneys for the Defendant Marker Volkl USA, Inc. using the CM/ECF system at the electronic mail addresses listed below and registered with the ECF system for this matter.

Andrew D. Manitsky, Esq.; amanitsky@lynnlawvt.com
Paul S. Rosenlund, Esq.; PSRosenlund@duanemorris.com,
Anthony J. Fitzpatrick, Esq.; AJFitzpatrick@duanemorris.com
Carolyn A. Alenci, Esq.; CAAlenci@duanemorris.com

Dated December 23, 2016:

FOX LAW GROUP, LLC

/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff(s), v. Marker Volkl USA, Inc., a New Hampshire Corporation Defendant(s).	)	Case No. 2:15-cv-121-wks

DECLARATION OF BRADLEY T. FOX IN SUPPORT OF PLAINTIFF KNEEBINDING, INC.'S OPENING CLAIM CONSTRUCTION BRIEF

I, Bradley T. Fox, hereby declare that the following is true and correct under penalty of perjury, pursuant to 28 U.S.C. § 1746:

1. I am an attorney of record in this case, 2:15-cv-121-wks. I am an attorney of record representing Plaintiff KneeBinding, Inc. ("KneeBinding"), and I make this declaration upon personal knowledge in support of Plaintiff KneeBinding, Inc.'s Opening Claim Construction Brief.

2. Attached as Exhibit A is a true and correct copy of Plaintiff KneeBinding Inc.'s Identification of Claim Elements for Construction.

3. Attached as Exhibit B is a true and correct copy of Marker Volkl USA, Inc.'s Disclosure of Claim Terms for Construction.

4. Attached as Exhibit C is a true and correct copy of Plaintiff KneeBinding, Inc.'s Proposed Claim Constructions of the Claim Elements Identified by the Parties for Construction.

5. Attached as Exhibit D is a true and correct copy of Defendant Marker Volkl USA, Inc.'s Preliminary Proposed Claim Constructions and Identification of Intrinsic and Extrinsic Evidence.

6. Attached as Exhibit E is a true and correct copy of U.S. Patent No. 8,955,867.

7. Attached as Exhibit F is a true and correct copy of pages from KneeBinding's website KneeBinding.com.

8. Attached as Exhibit G is a true and correct copy of Plaintiff KneeBinding Inc.'s Infringement Contentions.

9. Attached as Exhibit H is a true and correct copy of excerpts from the prosecution history of U.S. Patent No. 8,955,867.

10. Attached as Exhibit I is a true and correct copy of Howell Ski Bindings website outlining the claimed experience of Mr. Howell.

11. Attached as Exhibit J is a true and correct copy of a website page from Markerusa.com.

12. Attached as Exhibit K is a true and correct copy of a website page from http://backcountrymagazine.com/gear/marker-kingpin/ discussing the Marker Kingpin Ski Binding and a website page from http://snowbrains.com/marker-kingpin-ski-binding-review/ discussing the Marker Kingpin Ski Binding.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge and information.

Executed on December 23, 2016 at Durango, Colorado.

By: Bradley T. Fox

Exhibit !

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff(s),	)	
v.	)	Case No. 2:15-cv-121-wks
Marker Volkl USA, Inc., a New Hampshire Corporation Defendant(s).	)	

Plaintiff KneeBinding Inc.'s Identification of Claim Elements for Construction

Pursuant to the Scheduling Order in this case, Plaintiff KneeBinding, Inc., ("KneeBinding"), by and through its attorneys of record, submits its identification of terms and claim elements which may require construction.

KneeBinding reserves its right to supplement or amend this identification. By way of example, KneeBinding reserves its right to amend or supplement this identification in response to, or in consideration of, the positions and identifications taken by defendant Marker Volkl USA, Inc. ("Marker") concerning claim construction. In addition, by this identification KneeBinding is not suggesting that each of these terms must be construed by the Court, but rather that these terms may be in dispute and require construction by the Court.

KneeBinding identifies the following terms or phrases appearing in US Patent No. 8,955,867 that may require construction by the Court:

1. "a linkage element"
2. "fixedly attached"

Dated: November 4, 2016

FOX LAW GROUP, LLC

/s/Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

ANDERSON & ASSOCIATES
Peter G. Anderson, Esq.
Attorney for KneeBinding, Inc.
P.O. Box 566
954 So. Main Street
Stowe VT, 05672
Telephone: (802) 253-4011
Facsimile: (802) 253-6061
pga@paglaw.com

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff, v. Marker Volkl USA, Inc., a New Hampshire corporation, Defendant.	No. 2:15-cv-00121-wks

DISCOVERY CERTIFICATE

I hereby certify that on November 4, 2016, I served a copy of Plaintiff KneeBinding Inc.'s Identification of Claim Elements for Construction on the Attorneys for the Defendant Marker Volkl USA, Inc. using the CM/ECF system at the electronic mail addresses listed below and registered with the ECF system for this matter.

Andrew D. Manitsky, Esq.; amanitsky@lynnlawvt.com
Paul S. Rosenlund, Esq.; PSRosenlund@duanemorris.com,
Anthony J. Fitzpatrick, Esq.; AJFitzpatrick@duanemorris.com
Carolyn A. Alenci, Esq.; CAAlenci@duanemorris.com

Dated November 4, 2016:

FOX LAW GROUP, LLC

/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

Exhibit B

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT

KNEEBINDING, INC.,	:	
Plaintiff,	:	
v.	:	Case No. 2:15-cv-121
MARKER VOLKL USA, INC.,	:	
Defendant.	:	

MARKER VOLKL USA, INC.'S DISCLOSURE OF CLAIM TERMS FOR CONSTRUCTION

Pursuant to the Parties' Stipulated Discovery Schedule dated August 11, 2016, Defendant Marker Volkl USA, Inc. ("Marker"), by its attorneys, Duane Morris LLP, hereby provides the following list of claim terms for construction from U.S. Patent No. 8,955,867 ("the '867 patent").

CLAIM:	CLAIM TERM:
1	"vector decoupling assembly for separating and isolating two or more force vectors"
1	"safety binding"
1	"securing a heel portion of a ski boot to a ski"
1	"lower heel assembly"
1	"upper heel assembly"
1	"having a lateral release assembly for applying lateral securing pressure to the ski boot"
1	"linkage element"
1	"fixedly attached"
1	"wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region

	within a plane defined by the longitudinal and horizontal axes of the ski"
4	"maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly"
5	"the lateral release assembly moves in a first direction and a second direction with respect to the neutral position"
6	"wherein the motion of the lateral release assembly is at least partially rotational"
8	"a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear"
9	"a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear"

Marker reserves the right to supplement and/or amend this disclosure.

Dated: November 4, 2016

Andrew D. Manitsky
LYNN, LYNN, BLACKMAN &
MANITSKY, P.C.
76 St. Paul Street, Suite 400
Burlington, VT 05401
Telephone: (802) 860-1500
Facsimile: (802) 860-1580
Email: AManitsky@lynnlawvt.com

Paul S. Rosenlund
DUANE MORRIS LLP
Spear Tower
One Market Plaza, Suite 2200
San Francisco, CA 94105-1127
Telephone: (415) 957-3000
Facsimile: (415) 957-3001
PSRosenlund@duanemorris.com

Anthony J. Fitzpatrick
Carolyn A. Alenci
DUANE MORRIS LLP
100 High Street, Suite 2400
Boston, MA 02110-1724

Telephone: (857) 488-4200
Facsimile: (857) 401-3018
Email: AJFitzpatrick@duanemorris.com
Email: CAAlenci@duanemorris.com

Attorneys for Defendant
Marker Volkl USA, Inc.

CERTIFICATE OF SERVICE

I hereby certify that on November 4, 2016, a true and correct copy of the foregoing document was served on all counsel via email and first class mail.

Anthony J. Fitzpatrick

DM2\7289264.1

Exhibit /

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff(s),	)
v.	) Case No. 2:15-cv-121-wks
Marker Volkl USA, Inc., a New Hampshire Corporation Defendant(s).	)

Plaintiff KneeBinding Inc.'s Proposed Claim Constructions of the Claim Elements Identified by the Parties for Construction

Pursuant to the Scheduling Order in this case, Plaintiff KneeBinding, Inc., ("KneeBinding"), by and through its attorneys of record, submits its exchange of initial proposed constructions and intrinsic and extrinsic evidence in support of its initial constructions.

KneeBinding reserves its right to supplement or amend its initial constructions. By way of example, KneeBinding reserves its right to amend or supplement its initial constructions in response to, or in consideration of, the positions taken by defendant Marker Volkl USA, Inc. ("Marker") concerning claim construction. In addition, by this exchange of initial proposed constructions and intrinsic and extrinsic evidence in support of its initial constructions, KneeBinding is not suggesting that each of these terms must be construed by the Court. KneeBinding asserts below that many terms do not need construction by the Court.

KneeBinding proposes the following claim constructions for Claims of U.S. Patent No. 8,955,867 (the "'867 Patent"):

Claim Element	Preliminary Construction	Evidentiary Support
1. vector decoupling assembly for separating and isolating two or more force vectors	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, a heel unit of a ski binding for separating and isolating multiple forces	**Intrinsic Evidence:** '867 Patent: Title; Abstract; Fig. 1;Fig. 2; Col. 1, ll. 18-20; Col. 3, ll. 45-50; Col. 5, ll. 52-58; Col. 5, ll. 59-60.
2. safety binding	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, a ski binding that releases a ski boot under certain conditions	**Intrinsic Evidence:** '867 Patent: Col. 1, ll. 18-20; Col. 3, ll. 39-41. **Extrinsic Evidence:** DIN:ISO 13992:2007; A New Kingpin: Behind Marker's Tech Binding, by Tyler Cohen, Backcounty Magazine, September 2, 2014; Definition of "ski binding" http://www.thefreedictionary.com/ski+binding
3. securing a heel portion of a ski boot to a ski	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, holding the heel portion of a ski boot in place for skiing	**Intrinsic Evidence:** '867 Patent: Figs. 1-4; Col. 1, ll. 21-23; Col. 3, ll. 66-67; Col. 6, 20-22; Col. 6, 25-29; Prosecution History: Office Action dated 6/28/2011 Pages 2 and 3. **Extrinsic Evidence:** Commercial embodiment of Marker Kingpin Binding; Marker Jester Binding; KneeBinding Ski binding
4. lower heel assembly	No construction is needed and the term should be given its	**Intrinsic Evidence:** '867 Patent: Col. 4, ll. 60-63; Col. 5, ln 54; Col.

	plain and ordinary meaning. Should the Court require further construction, a lower portion of a heel unit of a ski binding	6, 56-61; Col. 6, 63-64; Col. 7, ll. 5-7; Col. 7, ll. 14-17.
5. upper heel assembly	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, an upper portion of a heel unit of a ski binding	**Intrinsic Evidence:** '867 Patent: Fig 1; Fig. 2; Col. 5, ll. 53-55; Col. 5, ll. 60-64; Col. 6, ll. 4-12; Col. 6, ll. 20-22; Col. 7, ll. 5-7; Col. 8 ll. 25-37.
6. having a lateral release assembly for applying lateral securing pressure to the ski boot	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, an asssembly that applies pressure to resist the ski boot heel from moving laterally	**Intrinsic Evidence:** '867 Patent: Fig. 3; Col. 3 ll. 45-47; Col. 3, ll. 53-56; Col. 4; ll. 53-56; Col. 5, ll. 22-23; Col. 9, ll. 33-36; Col. 10, ll. 3-8; Col. 10, ll. 46-49; Col. 10, ll. 53-57.
7. linkage element	An element that allows free-coupling between the upper heel assembly and the lower heel assembly	**Intrinsic Evidence:** '867 Patent: Fig.1; Fig. 2; Col. 4, ll. 57-63; Col. 7, ll. 29-31; Col. 7, ll. 41-45; Col. 8, ll. 25-37; Col. 8, ll. 50-54.
8. fixedly attached	The linkage element cannot be detached without damaging or breaking the ski binding	**Intrinsic Evidence:** '867 Patent: Fig. 2; Claim 1. **Extrinsic Evidence:** Definition of "fixed" http://www.merriam-webster.com/dictionary/fixed Definition of "attached"

		http://www.merriam-webster.com/dictionary/attached
9. wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, the linkage element and at least two surfaces cooperate to ensure that the lateral release assembly only moves within a known region within a plane defined by the longitudinal and horizontal axes of the ski	**Intrinsic Evidence:** '867 Patent: Col. 4, ll. 57-63; Col. 7, ll. 32-62; Col. 7, ll. 63-66; Col. 8, ll. 25-37; Col. 3, ll. 64-66; Col. 5, ll. 65-66; Col. 10, ll. 58-63.
10. maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, in the absence of forces applied to the heel unit, the lateral release assembly stays in the neutral position	**Intrinsic Evidence:** '867 Patent: Fig 3; Fig 4; Col. 3, ll. 53-56; Col. 4, ll. 39-46; Col. 7, ll. 26-28; Col. 10, ll. 3-8.
11. the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, the lateral release assembly moves in both directions	**Intrinsic Evidence:** '867 Patent: Col. 3, ll. 58-60; Col 4, ll. 1-5; Col. 8, ll. 54-62.
12. motion of the lateral release assembly is at least partially rotational	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require	**Intrinsic Evidence:** '867 Patent: Abstract; Col. 9, ll. 33-36.

	further construction, the lateral release assembly can rotate	
13. a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, as the lateral release assembly moves, the force required to move the lateral release assembly increases or decreases in a linear relationship to the amount of travel of the lateral release assembly	**Intrinsic Evidence:** '867 Patent: Col. 3, ll. 54-56; Col. 4, ll. 1-3; Col. 4, ll. 11-21; Col. 9, ll. 41 46; Col. 10, ll. 28-40; Col. 10, ll. 53-57; Col. 10, ll. 58-60.
14. a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear	No construction is needed and the term should be given its plain and ordinary meaning. Should the Court require further construction, as the lateral release assembly moves, the force required to move the lateral release assembly increases or decreases in a non-linear relationship to the amount of travel of the lateral release assembly	**Intrinsic Evidence:** '867 Patent: Col. 3, ll. 54-56; Col. 4, ll. 1-3; Col. 4, ll. 11-21; Col. 9, ll. 41 46; Col. 10, ll. 28-40; Col. 10, ll. 53-57; Col. 10, ll. 58-60.

///

///

///

///

///

Dated: November 18, 2016

FOX LAW GROUP, LLC
/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

ANDERSON & ASSOCIATES
Peter G. Anderson, Esq.
Attorney for KneeBinding, Inc.
P.O. Box 566
954 So. Main Street
Stowe VT, 05672
Telephone: (802) 253-4011
Facsimile: (802) 253-6061
pga@paglaw.com

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff, v. Marker Volkl USA, Inc., a New Hampshire corporation, Defendant.	No. 2:15-cv-00121-wks

DISCOVERY CERTIFICATE

I hereby certify that on November 18, 2016, I served a copy of Plaintiff KneeBinding Inc.'s Proposed Claim Constructions of the Claim Elements Identified by the Parties for Construction on the Attorneys for the Defendant Marker Volkl USA, Inc. using the CM/ECF system at the electronic mail addresses listed below and registered with the ECF system for this matter.

Andrew D. Manitsky, Esq.; amanitsky@lynnlawvt.com
Paul S. Rosenlund, Esq.; PSRosenlund@duanemorris.com,
Anthony J. Fitzpatrick, Esq.; AJFitzpatrick@duanemorris.com
Carolyn A. Alenci, Esq.; CAAlenci@duanemorris.com

Dated November 18, 2016:

FOX LAW GROUP, LLC

/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

Exhibit 5

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT

KNEEBINDING, INC., Plaintiff, v. MARKER VOLKL USA, INC., Defendant.	Case No. 2:15-cv-121

DEFENDANT MARKER VOLKL USA, INC.'S PRELIMINARY PROPOSED CLAIM CONSTRUCTIONS AND IDENTIFICATION OF INTRINSIC AND EXTRINSIC EVIDENCE

Pursuant to the Court's Scheduling Order dated August 11, 2016, Defendant Marker Volkl USA, Inc. ("Marker") provides in the Appendix (attached) its preliminary proposed constructions of the claim terms identified by the parties on November 4, 2016. These disclosures are based on information reasonably available to Marker at this time, with fact discovery at an early stage and expert discovery having not yet begun. They are made without prejudice to Marker's right to supplement or modify them in the future, including in response to discovery or information that has not yet been provided by Plaintiff or is otherwise presently known to Marker.

In addition to the evidence identified in the attached Appendix, Marker may also rely on expert testimony regarding the level of ordinary skill in the art as of the effective filing date of the patent-in-suit, and at the time the purported invention was allegedly made. Marker also may rely on expert testimony to provide background or a tutorial on the patent-in-suit, the science and technology relevant to that patent, Marker's accused product, and the prior art. Marker also may rely on expert testimony regarding the meaning (or lack of meaning) of the identified claim

terms to one of ordinary skill in the art. Marker reserves its right to supplement or modify these disclosures in rebuttal to Plaintiff's preliminary proposed claim constructions and identification of intrinsic and extrinsic evidence.

Dated: November 18, 2016

Andrew D. Manitsky
LYNN, LYNN, BLACKMAN &
MANITSKY, P.C.
76 St. Paul Street, Suite 400
Burlington, VT 05401
Telephone: (802) 860-1500
Facsimile: (802) 860-1580
Email: AManitsky@lynnlawvt.com

Paul S. Rosenlund
DUANE MORRIS LLP
Spear Tower
One Market Plaza, Suite 2200
San Francisco, CA 94105-1127
Telephone: (415) 957-3000
Facsimile: (415) 957-3001
PSRosenlund@duanemorris.com

Anthony J. Fitzpatrick
Carolyn A. Alenci
DUANE MORRIS LLP
100 High Street, Suite 2400
Boston, MA 02110-1724
Telephone: (857) 488-4200
Facsimile: (857) 401-3018
Email: AJFitzpatrick@duanemorris.com
Email: CAAlenci@duanemorris.com

Attorneys for Defendant
Marker Volkl USA, Inc.

CERTIFICATE OF SERVICE

I hereby certify that on November 18, 2016, a true and correct copy of the foregoing document was served on all counsel via email and first class mail.

Anthony J. Fitzpatrick

APPENDIX

U.S. Patent No. 8,955,867 ("the '867 patent")

Claim Term	Preliminary Construction	Preliminary Intrinsic Evidence	Preliminary Extrinsic Evidence
"vector decoupling assembly for separating and isolating two or more force vectors"	The vector decoupling assembly separates and isolates vertical force vectors from lateral force vectors, so that a principally vertical force vector will not result in release of a ski boot in a lateral direction, and a principally lateral force vector will not result in release of a ski boot in a vertical direction.	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent, including, but not limited to, the following: '867 patent, Abstract; Figs. 1–4; col. 3, ll. 7–23, 45–52; col. 4 at ll. 47–56; col. 5, ll. 4–9; col. 8 at ll. 11–27; col. 9, l. 33–col. 10, l. 57. December 20, 2011 Amendment in Response to Non-Final Office Action Under 37 C.F.R. 1.111 in U.S. Appln. Ser. No. 12/984,293, at 5–7. January 9, 2013 Request for Continued Examination Pursuant to 37 C.F.R. 1.114 and Amendment in U.S. Appln. Ser. No. 12/984,293, at 1, 5–6. October 8, 2013 Response After Final Action Under 37	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.

		C.F.R. 1.116 in U.S. Appln. Ser. No. 12/984,293, at 5–6. June 24, 2014 Response After Final Action Under 37 C.F.R. 1.116 in U.S. Appln. Ser. No. 12/984,293, at 2, 4–6.	
"safety binding"	Indefinite.		
"securing a heel portion of a ski boot to a ski"	The safety binding secures a heel portion of a ski boot to a ski.	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent, including, but not limited to, the following: '867 patent, Abstract; Figs. 1–4; col. 1, ll. 21–23; col. 2, l. 49–col. 3, l. 23; col. 4, ll. 23–46; col. 6, ll. 20–29; col. 6, l. 62–col. 7, l. 13; col. 9, l. 33–col. 10, l. 63. January 9, 2013 Request for Continued Examination Pursuant to 37 C.F.R. 1.114 and Amendment in U.S. Appln. Ser. No. 12/984,293, at 5. October 8, 2013 Response After Final Action Under 37 C.F.R. 1.116 in U.S. Appln.	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.

		Ser. No. 12/984,293, at 5–6. June 24, 2014 Response After Final Action Under 37 C.F.R. 1.116 in U.S. Appln. Ser. No. 12/984,293, at 2, 4–6.	
"lower heel assembly"	The lower heel assembly is attached to the ski, and does not have any components or parts in common with, the upper heel assembly.	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent, including, but not limited to, the following: '867 patent, Figs. 1–4; col. 4, ll. 57–63; col. 5, ll. 52–55; col. 6, l. 52– col. 7, l. 17.	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.
"upper heel assembly"	The upper heel assembly is coupled to, but does not have any components or parts in common with, the lower heel assembly.	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent, including, but not limited to, the following: '867 patent, Figs. 1–4; col. 5, ll. 52–55, 59–64; col. 6, ll. 4–29; col. 6, l. 62– col. 7, l. 17.	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.

6

"having a lateral release assembly for applying lateral securing pressure to the ski boot"	Indefinite.		
"linkage element"	Indefinite.		
"fixedly attached"	The "linkage element" is attached to the lateral release assembly in a fixed manner, such that it cannot be removed without destroying or damaging the safety binding.	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent.	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.
"wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski"	"a first surface": Indefinite. "a second surface": Indefinite. Motion of the lateral release assembly is limited, to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski, by only the "linkage element," a "first surface," and a "second surface."	The specification, claims, and file history of the '867 patent and related applications in the same family as the '867 patent, including, but not limited to, the following: '867 patent, col. 3, ll. 54–56, 64–67; col. 5, l. 65–col. 6, l. 3. December 20, 2011 Amendment in Response to Non-Final Office Action Under 37 C.F.R. 1.111 in U.S. Appln.	Expert testimony: Marker may rely on declarations from one or more experts and references cited therein concerning the meaning of this term to a person of ordinary skill in the art, including, without limitation, that the term as used in the claims of the '867 patent would have the meaning that Marker has proposed to one of ordinary skill in the art.

		Ser. No. 12/984,293, at 5–7. January 9, 2013 Request for Continued Examination Pursuant to 37 C.F.R. 1.114 and Amendment in U.S. Appln. Ser. No. 12/984,293, at 5–6. October 8, 2013 Response After Final Action Under 37 C.F.R. 1.116 in U.S. Appln. Ser. No. 12/984,293, at 6.	
"maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly"	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.		
"the lateral release assembly moves in a first direction and a second direction with respect to the neutral position"	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.		
"wherein the motion of the lateral release assembly is at least partially rotational"	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.		
"a relationship between a position of the lateral release assembly with respect to the	In view of Plaintiff's Infringement Contentions, Marker Volkl will await		

neutral position and the force required to move the lateral release assembly is linear"	Plaintiff's proposed construction of this claim term.		
"a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear"	In view of Plaintiff's Infringement Contentions, Marker Volkl will await Plaintiff's proposed construction of this claim term.		

DM2\7316352.2

Exhibit 9

US008955867B2

(12) **United States Patent**
Howell

(10) **Patent No.: US 8,955,867 B2**
(45) **Date of Patent: Feb. 17, 2015**

(54) **ALPINE SKI BINDING HEEL UNIT**

(75) Inventor: **Richard J. Howell**, Stowe, VT (US)

(73) Assignee: **Kneebinding, Inc.**, Stowe, VT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **12/984,293**

(22) Filed: **Jan. 4, 2011**

(65) **Prior Publication Data**

US 2011/0193324 A1 Aug. 11, 2011

Related U.S. Application Data

(60) Continuation of application No. 12/001,436, filed on Dec. 11, 2007, now Pat. No. 7,887,084, which is a division of application No. 10/780,455, filed on Feb. 17, 2004, now Pat. No. 7,318,598.

(60) Provisional application No. 60/448,645, filed on Feb. 18, 2003.

(51) **Int. Cl.**
A63C 9/00 (2012.01)
A63C 9/084 (2012.01)

(52) **U.S. Cl.**
CPC ***A63C 9/0844*** (2013.01); ***A63C 9/001*** (2013.01); ***A63C 9/0845*** (2013.01); ***A63C 9/0846*** (2013.01)
USPC **280/628**; 280/632

(58) **Field of Classification Search**
USPC 280/618, 624, 625, 626, 627, 628, 62, 280/632, 634
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,676,813 A 4/1954 Beyl
2,745,672 A * 5/1956 Meier, Jr. 280/627
3,578,350 A 5/1971 Suhner
3,606,370 A 9/1971 Spademan
3,610,650 A 10/1971 Korger et al.
3,620,545 A * 11/1971 Korger et al. 280/632
3,695,625 A 10/1972 Salomon
3,727,932 A 4/1973 Druss et al.
3,734,520 A * 5/1973 Hashioka 280/632
3,734,522 A 5/1973 Salomon et al.
3,773,344 A 11/1973 Wilkes
3,825,273 A 7/1974 Greene

(Continued)

OTHER PUBLICATIONS

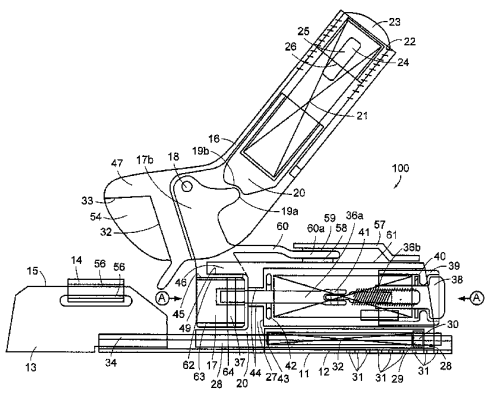
Minutes to ASTM F-27 Skiing Safety Meeting, Burlington, VT, Jul. 20-21, 2002.

Primary Examiner — J. Allen Shriver, II
Assistant Examiner — Bridget Avery
(74) *Attorney, Agent, or Firm* — Wilmer Cutler Pickering Hale and Dorr LLP

(57) **ABSTRACT**

Ski binding heel unit includes lateral release cams and a vector decoupler mechanism that provide lateral shear release of the heel of a ski boot from a ski. The ski binding heel unit includes an independent vertical heel release mechanism, independent lateral release mechanism and a forward pressure compensator. The lateral release cams have laterally outwardly flaring contact points. The vector decoupler mechanism restricts heel unit lateral rotation and translation to a control path. The shape of the lateral release cams dictates the control path. The vector decoupler mechanism redirects the non-lateral forces without effecting the vertical heel release, lateral heel release or forward pressure compensator. The lateral release cams and vector decoupler mechanism avert non-lateral, benign loads from the lateral heel release, and avert non-vertical, benign loads from the vertical heel release thereby reducing the incidence of inadvertent pre-release of a boot from a ski.

9 Claims, 4 Drawing Sheets



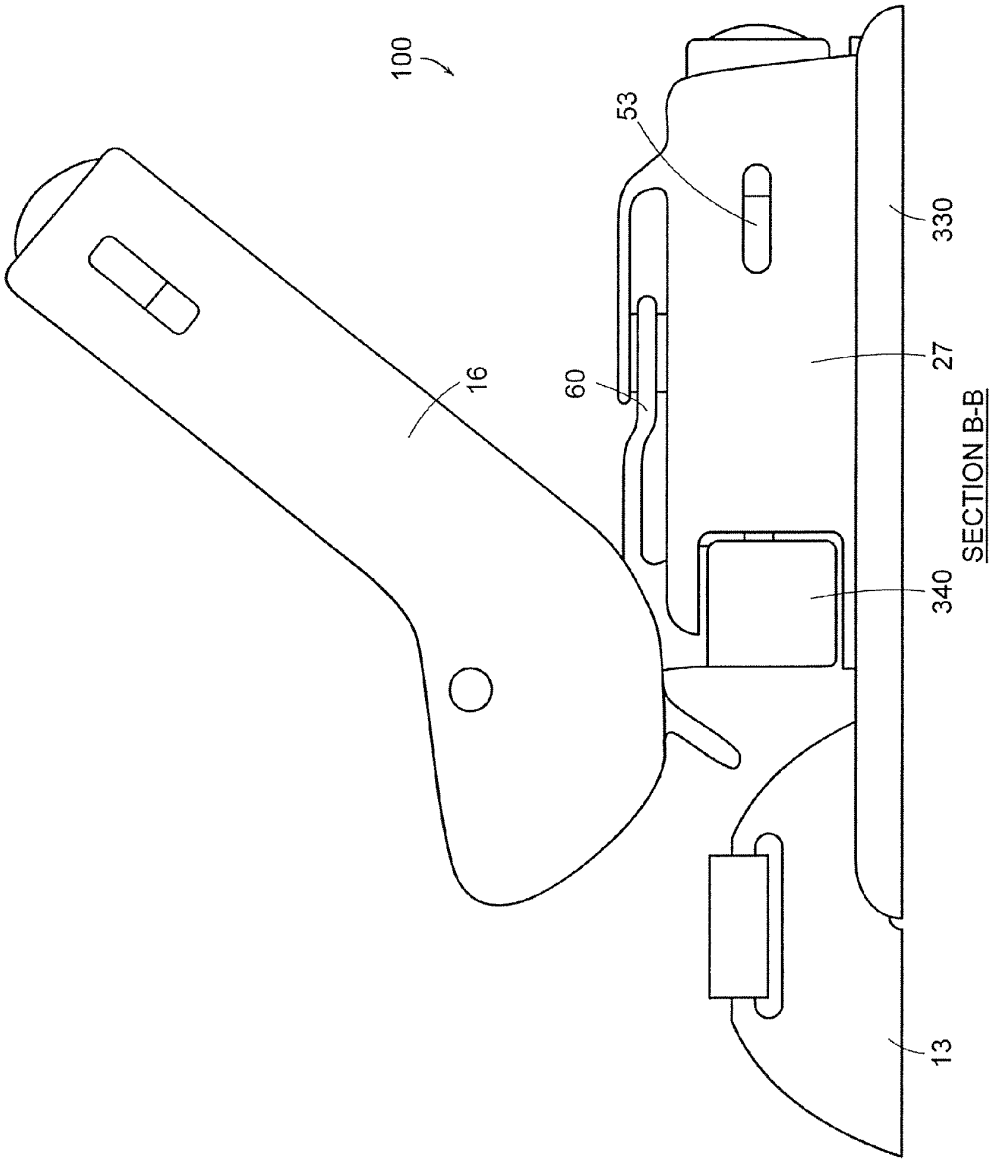
(56) **References Cited**

U.S. PATENT DOCUMENTS

3,865,388	A	2/1975	Haldemann et al.	
3,897,076	A	7/1975	Beyl et al.	
3,902,728	A	9/1975	Salomon et al.	
3,905,613	A	9/1975	Romeo	
3,909,029	A	9/1975	Salomon et al.	
3,936,062	A	2/1976	Schweizer et al.	
3,992,032	A *	11/1976	Swenson	280/632
4,052,086	A	10/1977	Eckart et al.	
4,065,151	A	12/1977	Weinstein et al.	
4,070,034	A	1/1978	Swenson	
4,111,453	A	9/1978	Krob	
4,165,883	A *	8/1979	Weigl et al.	280/618
4,183,549	A	1/1980	Salomon	
4,264,088	A	4/1981	Replogle	
4,266,806	A	5/1981	Weigl et al.	
4,268,064	A	5/1981	Svoboda et al.	
4,286,801	A	9/1981	Richert et al.	
4,288,094	A	9/1981	Svoboda et al.	
4,288,095	A	9/1981	Wittmann et al.	
4,294,461	A	10/1981	Eckart et al.	
4,307,898	A	12/1981	Schmidt et al.	
4,429,896	A	2/1984	Spademan	
4,444,413	A	4/1984	Richert et al.	
4,449,731	A	5/1984	Knabel et al.	
4,451,059	A	5/1984	Knabel et al.	
4,466,634	A	8/1984	Knabel et al.	
4,475,743	A	10/1984	Wittmann	
4,489,956	A	12/1984	Jungkind	
4,505,494	A *	3/1985	Gertsch	280/618
4,553,772	A	11/1985	Boussemart et al.	
4,602,804	A	7/1986	Spitaler et al.	
4,625,991	A	12/1986	Leichtfried	
4,732,405	A *	3/1988	Freisinger et al.	280/634
4,753,452	A	6/1988	Boussemart et al.	
4,758,017	A	7/1988	Stritzl et al.	
4,858,946	A *	8/1989	Stritzl et al.	280/618
5,160,159	A	11/1992	Gorza et al.	
5,199,736	A *	4/1993	Jungkind	280/618
7,887,084	B2	2/2011	Howell	
2002/0101063	A1	8/2002	Dodge	

* cited by examiner

FIG. 1



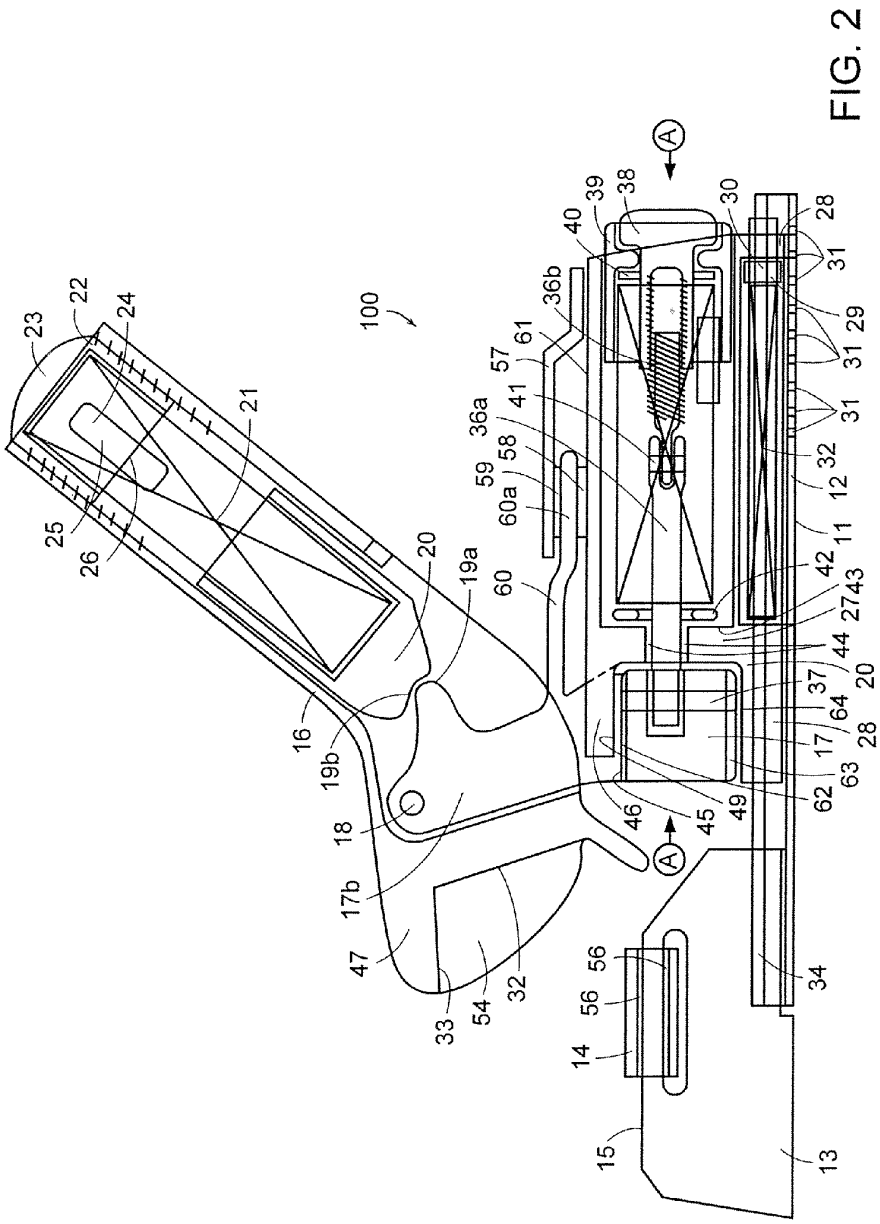

100
A
A
23
22
24
21
25
26
20
19a
16
19b
18
17b
47
33
54
32
60
60a
59
58
36a
41
57
61
36b
40
39
38
30
28
31
29
31
31
32
12
11
42
43
27
44
37
20
64
17
28
63
62
49
45
46
56
56
14
15
34
13

FIG. 2

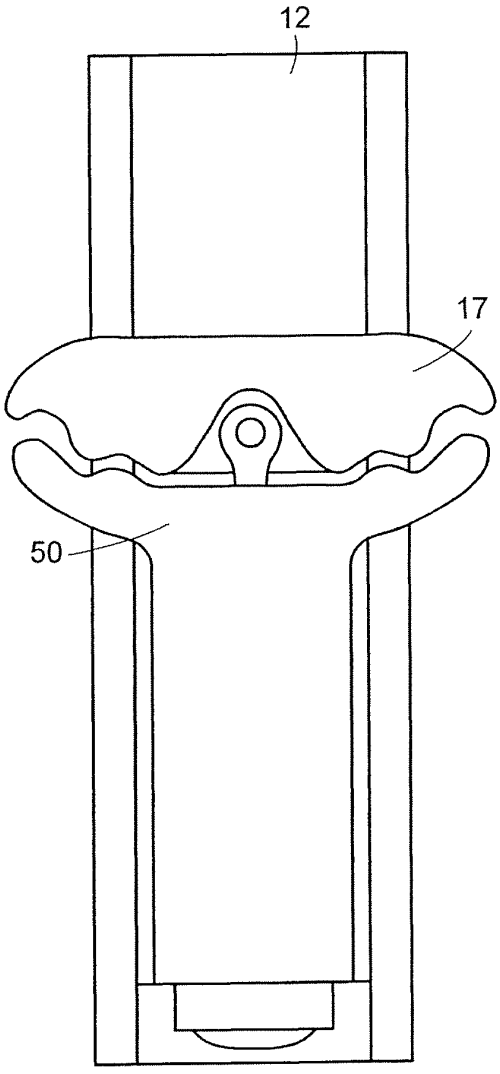


FIG. 3

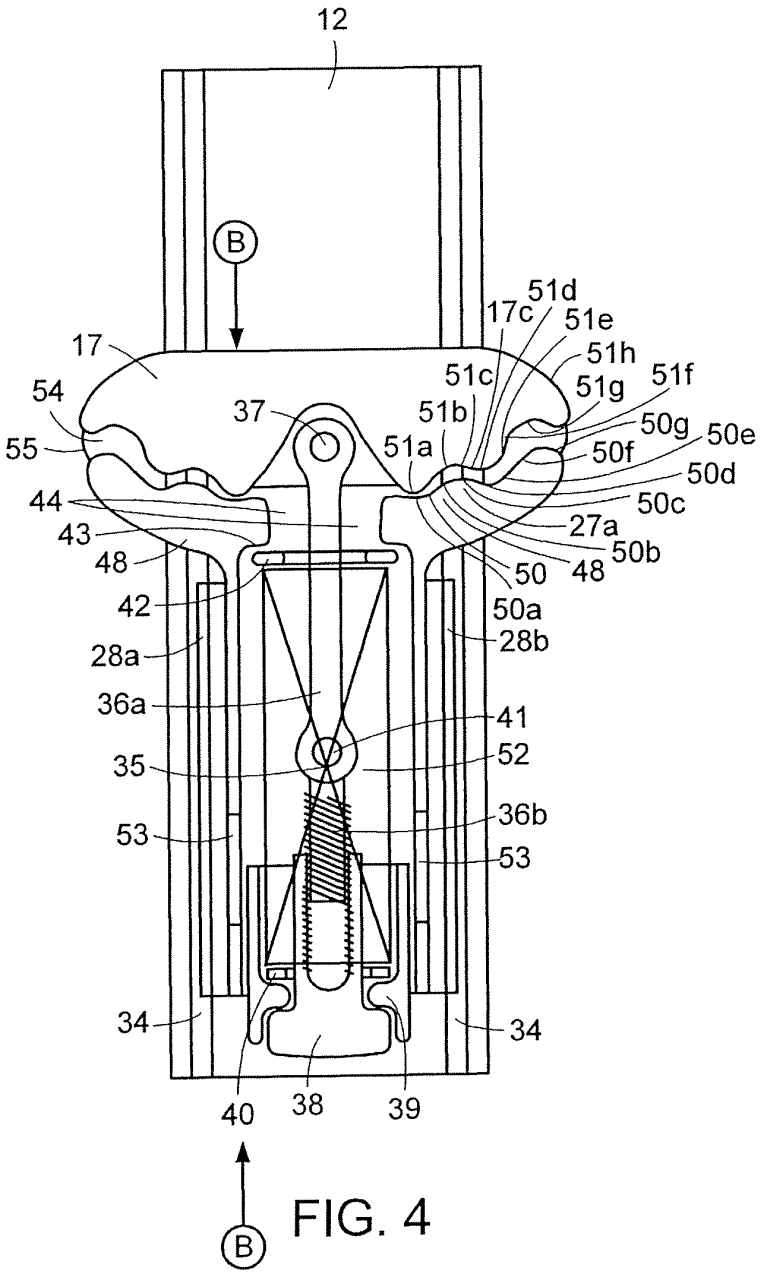


FIG. 4

ALPINE SKI BINDING HEEL UNIT

CROSS-REFERENCE TO RELATED APPLICATIONS

This patent application is a Continuation Patent Application of U.S. patent application Ser. No. 12/001,436, filed on Dec. 11, 2007 entitled ALPINE SKI BINDING HEEL UNIT, which is a Divisional Patent Application of U.S. patent application Ser. No. 10/780,455, filed on Feb. 17, 2004, which claims priority under 35 U.S.C. §119(e) to U.S. Provisional Application Ser. No. 60/448,645, filed on Feb. 18, 2003, all of which are expressly incorporated herein by reference in their entirety.

BACKGROUND

This invention relates in general to alpine ski bindings and, in particular, to multi-directional release alpine ski binding heel units that release in the vertical and lateral directions.

Ski binding heel units have a jaw that is adapted to hold a boot and move between a boot retention position and a release position. The jaw vertical pivots around an axis transverse to the longitudinal axis of the ski and/or binding against the action of an elastic system. The elastic system comprises a mobile member biased by a spring against a release incline on a support attached to the ski. Vertical heel release bindings have serious disadvantages because vertical release bindings only release the ski when there is downward stress imparted by the skier on the ski where the area of applied stress is located in front of the boot's fulcrum point, which fulcrum is typically located under the ball of the foot; or release the ski when there is an upward stress applied to the ski by the skier when the skier is turned backwards in a fall with the top/aft section of the ski being dragged in the snow. Ski binding heel units that only release vertically rely on the mating ski binding toe units (which toe units release in response to lateral stresses or in the case of multi-directional toes units, release in response to lateral and special vertical stresses), which in the case of multi-directional release toes that provide vertical release in response to vertical stresses applied to the ski by the skier to the top after-body section of the ski during pure backward falls and release vertically at the toe in response to vertical stresses being applied by the snow surface when the skier is backwards and the tip of the ski is being dragged in the snow. Heels that release only in the vertical direction rely on the mating ski binding toe units to provide lateral release in response to lateral stresses that enter the fore-body of the ski during forward twisting falls and in response to pure straight-downward twisting loads where an almost pure-torque is applied to the ski. Accordingly, with heels that only provide vertical release, lateral release of the ski from the boot is not possible when lateral forces are applied to the ski immediately under or near the heel that only releases vertically.

In an equal- and opposite vernacular, the boot can release from the ski, or the ski can release from the boot.

All alpine ski bindings provide lateral toe release to release the ski from the boot when a transverse-longitudinal (side of the ski) force is applied to the ski at all points along the ski, except where a lateral force is applied to the ski immediately under or near a non lateral releasing heel. A heel that releases in the vertical direction only which relies on a lateral releasing toe can be dangerous to the knee in the event of lateral forces being applied to the ski immediately under a heel that only provides vertical release, because a lateral force applied to a non-releasing ski, under a non-lateral releasing heel, can act over the entire length of the lower leg to generate a moment about the femur when the knee is bent at nearly 70-degrees to 110-degrees, which femur is semi-rigidly attached to the hip, thereby producing very high strain across the anterior cruciate ligament of the knee, often causing rupture of the ACL

Heel unit bindings that release both vertically and laterally have been proposed. Multi-directional heel unit bindings can have a jaw that laterally pivots around a vertical axis located on the longitudinal plane of symmetry of the ski or a jaw mounted on a universal joint and biased to a centered retention position by an elastic locking system. These heel unit bindings, however, have serious disadvantages. These disadvantages include unsatisfactory lateral and vertical retention of the ski to the boot.

Multi-directional release bindings that exhibit unsatisfactory lateral and vertical ski retention fail to retain skis to boots during normal controlled skiing which gives rise to a condition called pre-release. Pre-release occurs when a ski binding releases a ski during normal controlled skiing. Pre-release can be caused by an undesired relationship between the vertical forces, the lateral forces, the fore-and-aft forces, the forward and backward bending moments, the torsional moments (pure torques) and the roll moments (edging loads) that enter the binding

To overcome pre-release, some skiers manually increase the release level biasings of the ski binding which increases the retention of the ski to the boot in the binding. The increase in release level offsets inadvertent pre-release. However, the increase in retention also increases the release level, negating the original benefits that multi-directional bindings are intended to resolve.

Many of the multi-directional heel release bindings have offered the promise of improved release but have failed to provide adequate retention in practice. Consequently, previous multi-directional heel bindings do not meet fundamental design requirements of an alpine ski binding including providing proper retention of a ski to a boot during controlled skiing maneuvers

There is also one multi-directional heel unit which provides false-positive retention, because it provides retention during controlled skiing, but fails to allow proper lateral heel release when roll moments (from edging) are induced into the binding, and is being taken to market, regardless, because there is no international standard that tests for the effects of induced roll moments on proper lateral heel release. Therefore, in this special case, the important promise of multi-directional release is not present during edging, which is almost always occurring during controlled and uncontrolled skiing (potentially injurious falls).

Despite improvements in multi-directional toe release bindings, the incidence of knee injuries continues to increase. Frequently the anterior cruciate ligament (ACL) of knee is strained or ruptured. ACL strain intensifies when lateral forces are applied to the ski immediately under or near the projected tibial axis (coaxial with the tibia), generally known as phantom-foot fall kinematics. In phantom-foot falls a lateral heel release binding will avert ACL strain. For example, when the knee is in a flexion angle of approximately 70 to 110-degrees, lateral forces applied to the bottom of the project tibia axis generate a torque about the femoral axis when the hip is semi-fixed. Due to the long length of the lever-arm from the base of the ski, including the thickness of the ski, the thickness of the binding (often also including "under-binding devices"/plates), the thickness of the heel section of the boot sole and the long length of the tibia), this high leverage generates a large torque about the femur where the instant unit stress through the knee is applied as strain to the ACL. In this frequent circumstance, a lateral heel release

binding could release. However, a multi-directional heel release binding that accommodates the release of the ski in the above described situation, which provides proper lateral release during edge-induced roll moments and also prevents pre-release during normal skiing conditions has yet to be reduced to practice.

Pre-release in a multi-directional release heel (that provides release in the lateral and vertical directions) is primarily caused by an improper cross-linking of the design of the lateral and vertical release mechanisms; or by the cross-linked design of the mechanisms that control lateral, vertical, longitudinal, roll (induced edging), and forward and backward bending moments, causing the pure lateral release mode or the pure vertical release mode (the injurious modes) to become overloaded by the linked addition of the other non-lateral and non-vertical stresses (non-injurious/innocuous modes), by excessive friction between the release interfaces (low friction interfaces not only improve combined-loading release, but also enhance the rapid re-centering of the ski to the boot during innocuous stresses), and by insuring that the fitting adjustments that properly connect the binding to the individual sizing of the boot are correct.

In related art with a multi-directional heel release, a center release mechanism is used. However, center release mechanisms show evidence of internal friction, especially during induced roll moments from edging. Furthermore, snow can be forced into the front end of the binding where the moving twist release interface resides between the bottom side of the binding and the ski. The snow builds up, and when compressed by the cyclical action of ski flex and counter-flex, forms an expanding layer of ice that greatly increases the resultant twist release. The presence of snow and ice melts deposits large amounts of dirt and grit in the release interfaces. The deposition greatly increases the resultant twist release and subsequent resultant torsional loading induced into the tibia during combined forward twisting falls, by as much as 300%, easily causing a fractured tibia.

A multi-directional release binding that takes into consideration the aforementioned intricacies and prevents pre-release has not been reduced to practice.

SUMMARY OF THE INVENTION

An alpine ski binding heel unit is disclosed that includes a primary vertical release, lateral heel release and longitudinal pressure compensator. The primary vertical release, lateral heel release and longitudinal pressure compensator are de-linked from each other. That is, they are functionally independent mechanisms. The forward release, the lateral heel release, and longitudinal pressure compensator include independent adjustment.

In one embodiment, the lateral heel release includes a lateral release cam. The lateral release cam features a decisively controlled level of release effort as the heel of the boot displaces from the longitudinal center of the ski. The lateral release cam and similarly matched cam interface include two pairs of individual cam members. Each pair includes a left individual cam member and right individual cam member for lateral heel release in the left and right direction, respectively. The individual cam member comprise rounded faces such that during dynamic motion of the lateral release only one or two cam members are in contact with the matched cam interface. The lateral release cam restricts the movement of the lateral heel release to a predetermined path of both rotation and translation. The shape of the individual cam members and the matched cam interface define this predetermined path.

In one embodiment, the left and right side individual cam members are shaped symmetrically providing similar lateral release in either the inward or outward directions. In another embodiment, the two sides are shaped asymmetrically to provide unequal release in the inward and outward directions. The asymmetry is shaped so that the gross features of the individual cam members are either curved toward the fore body of the ski or curved aft toward the after-body of the ski. Curving forward increases the net lateral release, while curving aft decreases the net lateral release.

During dynamic actuation, the shape of the individual cam members shifts the instant center of contact between the lateral release cam and the matched cam interface. The contact center during its initial phase of lateral movement is at the inner pair of individual cam members. Specifically, one of the individual cam members (left or right) will contact the matched cam interface during the initial phase of lateral release. Then, during the latter phase of lateral movement, the contact center shifts from the inner pair to the outer pair of individual cam members (either left or right).

Analytically, the lateral heel release includes an incremental lever arm that resists lateral motion. The incremental lever arm is defined by the distance between the point of contact between the tension shaft and the point of contact on the lateral release cam. The incremental lateral release cam tilts during initial and latter phases of release. The lateral release cam tilt allows the instant lateral center of effort (from the longitudinal pressure) of the boot to shift laterally to a point that is farther away from the concentrated point of contact. The rolling nature of the contact interface, defined by the lateral release cam and the matched cam interface, minimizes changes in the coefficient of friction within the cam interface of the lateral heel release mechanism.

Lateral release of the ski from the boot occurs after the instant lateral center of the boot's longitudinal pressure is displaced past the outer most individual cam member (either left or right). The incremental lever arm offsets an opposing lever arm of the lateral release spring-bias. When the boot's lateral instant center of longitudinal pressure is disposed near the outer pair of individual cam members, the ski, relative to the boot, can either continue to move laterally until release if the induced load increased, or the ski, relative to the boot, can be pulled back to center if the loading innocuously dissipates. The net effect of multiple lever arms as described above pulls the ski, relative to the boot, back to center.

In one or more embodiments, a vector decoupler mechanism separates and isolates undesired release conditions from intended release conditions. The vector decoupler mechanism filters events including induced roll loads (due to edging on snow or ice), forward bending moments, vertical forces and backward bending moments from the primary lateral and vertical heel release mechanisms. The vector decoupler prevents influence on objects including the lateral heel release, the vertical heel release and the longitudinal pressure compensator.

The vector decoupler mechanism includes a tongue that extends from the upper stem of the lateral release cam. The tongue moves between two plates disposed above and below the tongue. The two plates are stationary relative to lateral heel release and are a part of a lower heel unit housing The lower heel unit housing connects to the non-moving side of the lateral release cams.

The heel unit as described also provides the function of entry and exit into and out of the ski by virtue of the movement of the vertical release feature. Stepping upon a treadle latches the heel unit to the boot. The other protruding end of

the heel unit can be stepped upon by the opposite ski, boot, pole or hand to effect stepping-out of (i.e., disengaging the boot from) the heel unit.

The vector decoupler mechanism filters out unwanted non-lateral loads away from the lateral release cam. The unwanted loads include those that occur when stepping-into the binding (as during latching the vertical release mechanism), those that occur during vertical only release, and those that occur during edging on snow or ice (roll moments).

The longitudinal pressure compensator includes a spring. The spring bias produces linear force between the boot and the jaw (heel interface of the binding) of the binding. Ski flex causes the spring to become compressed. In one embodiment, the longitudinal pressure compensator mechanism is semi-linked to the primary vertical heel release and lateral heel release mechanisms. Consequently, the longitudinal pressure on the lateral heel release mechanism and vertical release mechanism increases proportionally and predictably in the event of ski flex as a function of the spring rate of the forward pressure spring.

The design largely blocks the introduction of foreign matter into the lateral heel release cam mechanism, thereby not significantly affecting performance. The open space between the lateral release cam and the matching cam interface may be partially filled with a compressible rubber-like polymer to prevent the introduction of mud, road-salt and ice contaminates.

Another embodiment describes a heel pad, to which the heel area of the sole of the boot rests, which is coated with a low-friction element to minimize the lateral friction produced by normal forces (downward forces). An alternative describes a different coefficient of friction coating surface, such as, polytetrafluoroethylene (PTFE) or polypropylene. This low-friction interface maintains an expected level of lateral-twist release during the introduction of combined vertical-downward and roll loads, as primarily controlled by the spring-biased lateral heel release.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** illustrates a side view of the alpine ski binding heel unit;

FIG. **2** is a more detailed side view of the heel unit of FIG. **1**;

FIG. **3** illustrates a cross-sectional top view of a lateral release mechanism including the spring biasing; and,

FIG. **4** is a more detailed cross-sectional top view of the lateral release mechanism of FIG. **3**.

DETAILED DESCRIPTION

FIG. **1** shows a sectional side view of a ski binding heel unit **100**. The ski binding heel unit includes an upper heel housing **16**, lower heel housing **27**, heel pad **13**, lateral release **340**, interface support **330**, and vector decoupler mechanism **60**. Heel pad **13** connects to interface support. The heel housing is disposed on the lateral release **340**, which is connected to the vector decoupler mechanism **60**.

FIG. **2** details a side view of the alpine ski binding heel unit shown in FIG. **1**. Upper Heel housing **16** includes a pivot rod **18**, cam surfaces **19***a* and **19***b* stem section **17***b*, lateral release cam assembly **17**, vertical release cam follower **20**, vertical release spring **21**, threaded cap **22**, window **24**, polymer piece **25**, surface **26**, region **33**, and heel cup assembly **47**.

As used herein, the longitudinal and horizontal plane of the ski is that plane which is parallel to the bottom surface of the ski. The longitudinal and vertical plane of the ski is that plane which is perpendicular to the longitudinal and horizontal plane of the ski and parallel to the longitudinal centerline of the ski.

Upper heel housing **16** connects to lateral release cam **17** by way of a pivot rod **18**. Vertical release is a function of opposing vertical release cam surfaces **19***a* and **19***b* on the aft-most end of the upper one-third stem section **17***b* of lateral release cam **17**, and the vertical release cam follower **20**. The vertical release spring **21** (shown by an "X") in the large internal pocket of the upper heel housing **16** pushes cam follower **20**. Forward release threaded cap **22** compresses the opposing end of spring.

A window **24** on surface **26** registers the release adjustment value. In one embodiment, a transparent polymer piece **25** covers the window **24**. In a forward skiing fall, which generates a forward bending moment on the lower leg of the skier, the ski boot applies an upward vertical force to region **33** of the underside of heel cup **47** which heel cup is integral with upper heel housing **16**.

The upper heel housing **16** holds and compresses a ski boot heel downward to oppose the upward forces generated by the ski boot during skiing. Forces include those from forward bending moments and roll moments generated during edging because region **33** and pivot rod **18** have a lateral width to resist such induced roll moments from edging. The skier removes the ski boot from the alpine ski binding heel unit by applying downward pressure to the top end of upper heel housing **16** with the opposite ski, opposite boot, by ski pole, or by an open hand.

Cam follower **20** moves along the length of the pocket of the long axis of upper heel housing **16** in response to upward vertical forces being applied to region **33** or in response to downward exiting forces applied to the upper end of upper heel housing **16**. The shape of cam surfaces **19***a* and **19***b* control the relationship of the forces and corresponding displacement of cam follower **20**, as biased by spring **21**, which allows for the rotational displacement about a horizontal axis **18** of upper heel housing **16** and the vertical displacement of the ski boot in concert with region **33**.

The vertical release cam follower **20** is made of plastic, while the moving lateral release cam **17**/**17***b* is made of coated die cast metal or injection molded plastic, although other suitable materials known in the art may also be used. The vertical release cam interface between cam surfaces **19***a* and **19***b* can be heavily greased with moderately high viscosity low-friction grease such as molybdenum disulfide or the like. The wicking action of cam surfaces **19***a* and **19***b*, as in the way an eye-lid functions, preclude mud, road-salt and ice from interfering with smooth vertical release cam action.

Interface support **330** includes bottom surface, stop-lock/nut **29**, teeth **30**, longitudinal spring **32**, and lower carriage **12**.

Lower carriage **11**, connects to the top surface of a ski (not shown), to a riser plate (not shown), a lifter (not shown) or to an integral rail-system (not shown). Stop-lock/nut **29** has one or more teeth **30** to allow selective movement of lower heel housing **27** along the length of lower carriage **12** in conjunction with slots **31** that are formed in lower carriage **12**. Turning stop-lock/nut **29** facilitates movement of lower heel housing **27** relative to lower carriage **12** to properly fit various lengths of ski boots between the lower heel housing **27** and an alpine binding toe piece (not shown).

In series with the stop-lock/nut **29** and lower heel housing **27** is longitudinal spring **32**, which provides a spring bias between lower heel housing **27** and lower carriage **12**. Longitudinal spring **32** also provides longitudinal pressure between the lower heel housing **27** and alpine binding toe piece to ensure proper hold of a boot during the ski's counter-

flex. Counter-flex increases the strain on the top surface of the ski, thereby increasing the distance between the toe piece and heel unit **100**. The longitudinal pressure maintains the contact of the binding's toe piece and heel unit **100** throughout the ski counter-flex. The lower heel housing **27** applies longitudinal pressure to the ski boot via the upper heel housing **16** at surface **32** of heel cup **47**. An internal shoulder on stop-lock/nut **29** prevents the nut **29** from falling out of its opening at the end of the lower heel housing **27**. Longitudinal pressure increases substantially during ski flex. Such pressure is addressed by the longitudinal pressure spring biasing means that is comprised of elements **32**, **29**, **30**, **31** within lower heel housing **27**.

The lower heel housing **27** fits to and integrates with lower carriage **12** by flanges **28**. Specifically, flanges **28***a*, **28***b*, on each side of the lower heel housing **27**, mate with lower carriage **12**.

Heel pad **13** includes low-friction element **14**, low-friction surface **15**, and bearing grease **56**. Low-friction element **14** is disposed on the heel pad **13** and is lubricated with bearing grease **56**. In an alternate embodiment low-friction surface **15** and bearing grease **56** is replaced with a low-friction surface **15** to which a boot can contact. Low-friction means **14** and **15** provide smooth lateral heel release during combined downward-vertical and lateral stresses, which mitigate torque about the femur and correspondingly strained ACL. Low-friction means **14** and **15** contribute to rapid re-centering of the heel of a boot during innocuous lateral heel loads.

The vector decoupler assembly **60** includes cantilevered plate **57**, vector decoupler tongue **60***a*, top surface **61**, and low-friction elements **58** and **59**.

The cantilevered plate **57** joins to the moving lateral release cam element **17**. The low friction elements **58** and **59** are made of a low-friction polymer, such as polytetrafluoroethylene (PTFE), or are made of other low-friction materials or surfaces that are already well known in the art. One side of the low-friction element **58** bonds to a mating surface (not shown). For example, the top-side of low-friction element **58** can be bonded to the bottom side of vector decoupler assembly **60**, allowing the low friction element **58** to slide while rotating and translating laterally. The translation occurs with the vector decoupler tongue **60***a* when a force is applied to the vector decoupler tongue **60***a* such that the vector decoupler tongue **60***a* is applied against top surface **61** of lower heel housing **27**. Optionally, the bottom side of low-friction element **58** can be bonded to the top surface **61** of lower heel housing **27**. Accordingly, the vector decoupler tongue **60** can rotationally and translationally slide laterally against low friction element **58**. if the vector decoupler tongue is made of an aluminum die casting, a low friction coating (such as Teflon impregnated epoxy paint) is applied to the contact surfaces of the vector decoupler tongue **60***a* and the top surface **61** of the lower heel housing **27**. Low friction coatings provide a low friction interface between the vector decoupler tongue **60** and the lower heel housing. If the vector decoupler tongue is made of injection molded plastic, the plastic material itself can be of a low coefficient of friction material without any coating, such as DuPont Delrin blended with PTFE, low-coefficient of friction grades of Nylon 12 or Nylon 66 or other low-coefficient of friction/high impact at low-temperature grades of plastics that are already well known in the art.

In a similar way, the top-side of low-friction element **59** bonds to the bottom side of cantilevered plate **57** so that the vector decoupler tongue **60***a* can slide smoothly while rotating and translating in the general lateral direction. Or, optionally, the bottom side of low-friction element **59** can be bonded to the top surface of the vector decoupler tongue **60***a* while the top surface of the low-friction element **59** slides by rotating and translating against the bottom side of the cantilevered plate **57**. If the vector decoupler tongue is made of die castable aluminum, low friction coatings, such as Teflon impregnated epoxy paint, are applied to the contact surfaces of the vector decoupler tongue **60***a* and the bottom surface of the cantilevered plate **57**. The application provides a low-friction interface between the vector decoupler tongue **60***a* and the cantilevered plate **57**.

The vector decoupler assembly **60** has sufficient width between 1 cm and 3 cm in the lateral direction. The augmented width resists a roll moment induced by a skier. The width also resists the stresses induced in the roll direction when skiing on snow or icy surfaces when a boot is forced to overturn laterally (roll), so that an upward unit force is applied to one side of the lateral region **33** of the underside of heel cup **47** thereby decoupling the effects of induced roll moments from the vertical release mechanism—minimizing inadvertent pre-release. The resistance supplied by the vector decoupler substantially decouples the roll moment from the moving lateral release cam surfaces **17***c* and interfacing lateral release cam surfaces **27***a*, thereby decoupling the effects of induced roll moments from the lateral heel release.

The vector decoupler assembly **60** allows free lateral translational and rotational movement of the moving lateral release cam **17** relative to the lower heel housing **27**. The vector decoupler assembly **60** also allows free coupling of moving lateral release cam **17** against the mating cam surfaces **27***a* in the presence of lateral heel release loads. This occurs even when induced roll moments and upward force vectors are applied through the vector decoupler assembly **60**. Free coupling is partially limited by friction generated between the sliding surfaces of low-friction elements **58** and **59** and the respective mating surfaces of components **60***a* and **61**. Component **61** can be affixed to the lower heel housing **27** by band **18** that wraps around the lower heel housing **27**.

In an alternate embodiment, cantilevered plate **61** is formed integrally with lower heel housing **27** as an aluminum die-casting or as an injection molded plastic part. The long length of vector decoupler tongue **60***a* reduces the unit compressive stresses at the far end of the tongue, between its interfacing components, low-friction element **59** and cantilevered plate **61** during induced forward bending moments. The long length of vector decoupler tongue **60** also serves to reduce the compressive stresses between interfacing components, low friction element **58**, and the lower heel housing **27** during the latching action of stepping into the lower heel housing **27**.

Vector decoupler mechanism **60** above is de-coupled from longitudinal pressure loads generated between moving lateral release cam **17** and lower heel housing **27**, due to the longitudinally-open linkage between tongue **60***a* and cantilevered plate **57**. In another embodiment, the side-to-side movement of the tongue **60***a* may be limited either on one side or both sides and substantially restricted on one side to block lateral heel release in one lateral direction to cut the probability of lateral heel pre-release in half while at the same time allowing release in the other lateral direction to provide for the lateral stresses that cause the inward twisting abduction loads present in ACL ruptures, described in part by the phantom-foot injury mechanism/fall mechanics described above.

FIG. **3** illustrates a sectional top view of a lateral heel release mechanism. FIG. **4** shows the view of FIG. **3** in greater detail. Lateral release cam **17** is disposed next to matched cam interface **50**. Both lateral release cam **17** and matched cam interface is disposed on top of lower carriage **12**. Lateral

release **340** includes lateral release cam **17**, matched cam interface **50**, spring biasing means **52**, lateral heel release spring **35**, tension shaft parts **36***a* and **36***b*, connector rod **41**, shaft-rod **37**, lateral release indicator washer **39**, internal washer **40**, integral opening **44**, rectangular opening washer **42**, and interface curved surfaces **51***a*, **51***b*, **51***c*, **51***d*, **51***f*, **51***g*.

Referring to FIGS. **2** and **4**, the lateral heel release mechanism comprises lateral release cam surfaces **17***c* and lower heel housing lateral cam surfaces **27***a*, which are biased (i.e., forced together) by lateral heel spring-biasing component **52**. Lateral spring biasing component **52** includes lateral heel release spring **35** that is placed in compression by the opposing force of the tension shaft parts, **36***a* and **36***b* (or by optional unitary tension shaft **36**), and connector rod **41**. These are supported at each tensioned two ends of the rod(s). At one end, shaft-rod **37**, lateral release cam **17**, and rectangular opening washer **42** support the equal and opposite compression against internal wall **43** of lower heel housing **27**. At the other end, lateral release threaded cap **38**, lateral release indicator washer **39**, internal washer **40** support the equal and opposite compression of the tension rod(s). Internal opening **44** and the internal opening of rectangular opening washer **42** are both rectangular in shape to permit tension shaft **36***a* (or **36**) to rotate and translate laterally upon the lateral movement of moving lateral release cam **17**. While the vertical gaps of internal opening **44** and the vertical gaps of rectangular opening washer **42** are each smaller than their respective lateral gaps, such vertical gaps restrict the vertical movement of tension shaft **36***a* (or **36**), so that upper heel housing **16** provides vertical movement of the ski binding heel unit about its pivot axis **18**, rather than by the forced vertical movement of other elements.

Lateral heel release cam surfaces allow the lateral release cam **17** to both rotate and translate relative to the lower heel housing **27**, so that the heel area of the ski boot can displace laterally relative to the long axis of the ski. Boot displacement occurs when lateral loads are induced. Such lateral movement of the boot occurs across low-friction element **14** and heel pad top surface **15**, as well as laterally against heel cup **47** boot-interface surfaces **32** and **33**.

The lateral release cam surfaces **17***c* and **27***a* of the lateral release cam **17** and the mating cam surfaces **27***a* of the lower heel housing **27** displace relative to each other in a path described by their curved surfaces—specifically, curved surfaces **50***a*, **50***b*, **50***c*, **50***d*, **50***f*, **50***g* and their respective incremental interface curved surfaces **51***a*, **51***b*, **51***c*, **51***d*, **51***f*, **51***g*.

A partial lateral boot heel displacement occurs when the projected longitudinal-pressure center-of-effort between the boot and the heel cup **47** shifts laterally and the moving lateral release cam **17** tilts by rotating and translating a small amount, biased by lateral heel release spring **35**. During such a partial lateral boot heel displacement, the opposing curved cam surfaces **50***a*, **50***b*, **50***c*, **50***d*, **50***f*, **50***g* move by translating and rotating (tilting) from their at-rest position to the next point of cam contact **50***c* and **51***c*, biased by lateral heel release spring **35**. Accordingly, cam surfaces **50***b* and **51***b* space apart the "a-a" (as in **50***a* and **51***a*) surfaces from the "c-c" surfaces to provide an incremental lever arm. The incremental lever arm permits lateral translational and rotational movement of **17** relative to **27***a*. The at-rest position is defined to be when the surfaces on the symmetrically opposite side of the lower heel housing **27** are touching each other. For example, the at-rest position occurs when surfaces **50***a* and **51***a* are contacting each other.

As the heel of the boot continues to move laterally and lateral release cam **17** rotates and translates more to the point where cam surfaces "c-c" touch, a reverse-polarity lever-arm is generated that vector-adds to the spring bias effect of **52**. The resultant incrementally abates the rotational and translational movement of lateral release cam **17**. The abatement acts to re-center lateral release cam **17** toward its at-rest position, thereby providing incremental retention in the advent of large amounts of longitudinal pressure between the boot and lateral release cam **17**, which would otherwise cause inadvertent pre-release. If the lateral load at the heel persists in magnitude and/or and duration, the boot's instant center of effort of longitudinal pressure then shifts outside of cam contact surfaces "c-c" to release the ski from the boot quickly and efficiently as is the case with ACL injury producing loads.

A similar benefit results if a load continues to persist in magnitude and duration while lateral release cam **17** continues to translate and rotate past the boot's projected longitudinal pressure shifts "outside" of cam contact surface "e-e." This reverses the polarity of the lever arm that acts perpendicular to the boot's projected center of effort of longitudinal pressure, thereby vector-subtracting from spring biasing means **52** to precipitate efficient release. Cam surfaces "f-f" begin to separate as cam surfaces "g-g" contact one another.

Finally, when cam surfaces "g-g" contact and the boot's projected instant center of longitudinal pressure shifts "outside" of cam surface contact point "g-g", the perpendicular lever arm finally reverses polarity again to vector-subtract from the spring bias **52**, causing the moving lateral release cam **17** to rotate and translate toward lateral heel release.

The novel incremental vector additions and subtractions along the progressive cam surfaces that progress from cam surfaces "a-a" to cam surfaces "g-g" as described above, are also progressively effected by the increasing overall lateral lever arm generated between those cam contact surfaces and the reaction force of spring bias **52** applied at the instant-center-of-effort of shaft-rod **37**. This arrangement makes lateral pre-release incrementally more difficult, the maximum point of release being a function of the exact spring constant of lateral heel spring **35**, the amount of compression of spring **35** as controlled by lateral release threaded cap **38** (as indicated in lateral release level windows **53** on each side of lower heel housing **27**). The maximum point of release is off-set by the incrementally decreasing longitudinal distance of the lever arm, between the lateral instant-center-of-contact of the side of the boot's heel and the lateral heel cup surface **54**, to the instant-point of surface-contact on the progressive cam surfaces **17***c* and **27***a*.

If the moving progressive cam **17** were to rotate only about a central pivot located over the center of the ski, the alpine binding heel unit **10** would be too biased toward release and skiers would suffer from pre-release. On the other hand, if the moving progressive can were to rotate only about opposing cam surfaces "g-g" (as in **50***g* and **51***g*) the alpine binding heel unit would be too biased toward retention and skiers would suffer from ruptured ACL injuries. The progressive cams thus strike a decisive balance over release and retention by incrementally reversing polarity between release and retention during the course of lateral heel movement when moving cam **17** rotates and translates accordingly.

The kinematics of the incremental lateral release path of the boot relative to the ski can be controlled by the geometry of the mating cam surfaces as noted above. Adjustments to control the point of maximum lateral release can be adjusted by the compressive movement of lateral release threaded cap **38**.

In one embodiment, a compressible elastomeric material **54** such as Dupont Crayton is placed between lateral release cam surfaces **27***a* and **17***c* to minimize the contamination effects of ice, mud and road-salt. Alternatively, a very highly

elastic membrane **55** can be placed at the open end of the surfaces as a barrier to such contaminants. In yet another embodiment, the gap between the surfaces can remain open and exposed so that visual inspection of the gap can be easily performed by skiers or service technicians and because of the curved end surface of **51***h*. The curved end serves as a snow, ice and road-salt deflector to mitigate the practical effects of such environmental exposure. The entire lateral release mechanism including components **38**, **39**, **40**, can be easily removed from parts **35**, **36***a*, **36***b*, **41**, **42**, **37** and **17** to allow for periodic cleaning of the lateral release cam surfaces **17***c* and **27***a*. Snow pack does not build-up and compress into ice in the gap between **17***c* and **27***a* because the lateral orientation of the gap is at right angles to the direction of travel through the snow, mitigating the practical and important concerns about snow-pack and ice formation and its interference with lateral heel release.

Low-friction journals, or integral surfaces **62** and **63** of moving lateral release cam **17** further serve to decouple induced roll and vertical loads when acting against surfaces **49** and **64**. They are, however, limited in their structural capacity due to the high unit stresses imposed on these surfaces. Such stresses exist because of the necessary restricted longitudinal lengths of elements **62**, **63**, **49** and **64**, due to the need for the lower heel housing **27** to be compact in overall size, thereby causing the vector decoupler mechanism **60** to act in concert together with elements **62**, **63**, **49** and **64** to provide counter resistive fulcrum points as well as sliding bearing interface surfaces.

Other aspects, modifications, and embodiments are within the scope of the following claims.

What is claimed is:

1. A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski;

an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly for applying lateral securing pressure to the ski boot, the upper heel assembly comprising an upper heel housing that is configured to compress the heel portion of the ski boot downward;

a linkage element fixedly attached to the lateral release assembly;

wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

2. The vector decoupling assembly of claim **1**, wherein the first surface and the second surface are substantially parallel to one another.

3. The vector decoupling assembly of claim **1**, wherein the first surface and the second surface cooperate to limit motion of the linkage element to the longitudinal and horizontal plane of the ski.

4. The vector decoupling assembly of claim **1**, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly.

5. The vector decoupling assembly of claim **4**, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.

6. The vector decoupling assembly of claim **5**, wherein the motion of the lateral release assembly is at least partially rotational.

7. The vector decoupling assembly of claim **5**, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

8. The vector decoupling assembly of claim **7**, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

9. The vector decoupling assembly of claim **7**, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

* * * * *

Exhibit C

Safer knee binding

Performance + Protection = Confidence

Ski Better.
And still be able to walk to the car.

KneeBinding

Changing Ski Bindings For Good.

KneeBindings have a 3rd dimension - a calibrated, ***PureLateral™*** heel.
It can detect the forces that cause most knee injuries, and release before the injury occurs!
KneeBinding is the only binding proven to help protect your knees on skis.

Professional-grade KneeBindings also perform better. They are the ONLY bindings made in America, with superior leverage, edge-grip, and retention. KneeBindings offer industry-leading elasticity, cantilevered brakes, configurable ramp delta, precision toe height, the most stable boot platform, the widest mounting platform, and the ONLY floating mount system for "flat" skis.

It's no accident that KneeBindings have won every major on-snow performance award.

Insist on KneeBindings.
World-class convenience, performance, and retention.
Dramatically fewer serious injuries.

Why KneeBindings?

Each year, 70,000 skiers injure an ACL (anterior cruciate ligament) on all ***other*** alpine bindings,

Please contact us at: info@KneeBinding.com

KneeBinding, Inc.
782 Mountain Road
PO Box 1416
Stowe, Vermont 05672 USA
Phone: +1 802-760-3026
Fax: +1 802 760-3031

Please Share Your Thoughts or Questions:

Email:
Name:
Address:
City:
State: Postal Code:
Country: United States
Phone:
Comments:

Edit Send Clear

Please enter your information and click the SEND button...

Exhibit D

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff, v. Marker Volkl USA, Inc., a New Hampshire Corporation Defendant.	)))) Case No. 2:15-cv-121-wks))))

Plaintiff KneeBinding Inc.'s Infringement Contentions

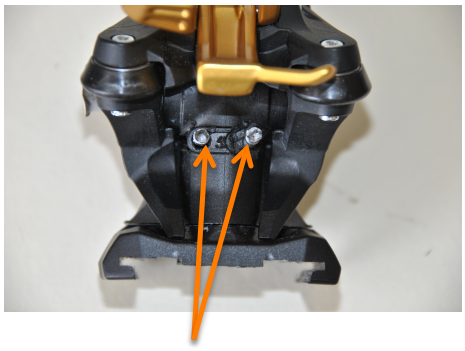
Pursuant to the Parties' Stipulated Discovery Schedule dated August 11, 2016, KneeBinding, Inc. ("KneeBinding") makes the following infringement contentions:

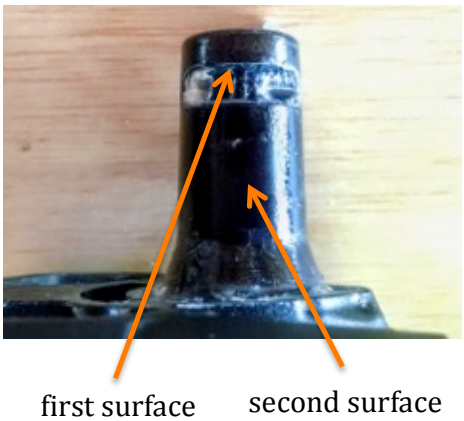
KneeBinding asserts that the Kingpin ski binding sold by Defendant Marker Volkl USA, Inc. ("Marker") infringes Claims 1, 4, 5, 6, and 7 and Claim 8 or 9 of U.S. Patent No. 8,955,867 (the "'867 Patent"). Determination of infringement of Claim 8 or 9 requires discovery beyond information publically available to KneeBinding. The chart below will be updated at such a time discovery shows whether the force required to move the lateral release assembly is linear or non-linear.

The chart below details infringement of the '867 Patent by the Kingpin ski binding:

‘867 Patent Claim	Accused Kingpin Binding
1. A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:	The Kingpin utilizes a force decoupling assembly to separate and isolate two force vectors: the vertical force vector and the lateral force vector. The Kingpin is a safety binding for skiing that secures a heel portion of a ski boot to a ski.
a lower heel assembly attached to the ski;	The Kingpin binding has a lower heel assembly that is attached to the ski. The lower heel assembly that interacts with the upper heel assembly is shown below.  The Kingpin binding does not perform its commercial function unless it is attached to a ski.
an upper heel assembly coupled to the lower heel assembly and	The Kingpin has an upper heel assembly coupled to the lower heel assembly.  CONTINUED BELOW

having a lateral release assembly for applying lateral securing pressure to the ski boot,	The upper heel assembly has a lateral release assembly that applies lateral securing pressure the ski boot.   The lateral release assembly comprises a body containing a roller cam pressured by a spring. The amount of pressure the spring exerts on the cam is adjustable by a threaded post. The greater the spring is compressed, the greater the lateral securing pressure on the boot. CONTINUED BELOW

the upper heel assembly comprising an upper heel housing that is configured to compress the heel portion of the ski boot downward;	The upper heel assembly has an upper heel housing configured to compress the heel portion of the ski boot downward. 
a linkage element fixedly attached to the lateral release assembly;	The linkage element is comprised of two pins fixed to body of the lateral release assembly.  linkage element The pins are pressed in place to the lateral release assembly body and can only be destructively removed from the Kingpin ski binding causing the binding not to function.

wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.	The Kingpin has a linkage element, the two pins fixed to the body of the lateral release assembly; a first surface, the upper surface of the groove portion of the cylindrical post; and a second surface, the body portion of the cylindrical post.  The pins, the upper surface of the groove, and the body surface of the cylindrical post cooperate to limit the motion of the lateral release assembly within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.
4. The vector decoupling assembly of claim 1, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly.	The lateral release assembly of the Kingpin binding is maintained in a neutral position due to the roller cam pressure created by the spring.
5. The vector decoupling assembly of claim 4, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.	The lateral release assembly of the Kingpin binding is configured to permit rotation in both a counterclockwise and clockwise direction.
6. The vector decoupling	The lateral release assembly of the Kingpin

assembly of claim 5, wherein the motion of the lateral release assembly is at least partially rotational.	binding moves rotationally during a lateral release of the heel piece of the binding
7. The vector decoupling assembly of claim 5, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.	The lateral release assembly of the Kingpin binding comprises a roller cam and a spring. As the roller cam moves from the neutral position, the spring is progressively compressed which increases the force required to continue to move the roller cam.
8. The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.	Visual inspection of the Kingpin binding is insufficient to determine whether the force required to move the lateral release assembly from its neutral position is non-linear or linear. This chart will be updated to assert either Claim 8 or Claim 9 depending upon whether the force is determined to be linear or non-linear.
9. The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.	Visual inspection of the Kingpin binding is insufficient to determine whether the force required to move the lateral release assembly from its neutral position is non-linear or linear. This chart will be updated to assert either Claim 8 or Claim 9 depending upon whether the force is determined to be linear or non-linear.

KneeBinding reserves the right to amend these contentions in view of the Court's claim construction rulings or alternatively assert infringement under the doctrine of equivalents.

///

///

///

///

Dated: September 16, 2016

FOX LAW GROUP, LLC

/s/Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528A Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

ANDERSON & ASSOCIATES
Peter G. Anderson, Esq.
Attorney for KneeBinding, Inc.
P.O. Box 566
954 So. Main Street
Stowe VT, 05672
Telephone: (802) 253-4011
Facsimile: (802) 253-6061
pga@paglaw.com

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

KneeBinding, Inc., a Delaware corporation, Plaintiff, v. Marker Volkl USA, Inc., a New Hampshire corporation, Defendant.	No. 2:15-cv-00121-wks

DISCOVERY CERTIFICATE

I hereby certify that on September 16, 2016, I served a copy of KNEEBINDING INC.'S INFRINGEMENT CONTENTIONS on the Attorneys for the Defendant Marker Volkl USA, Inc. using the CM/ECF system at the electronic mail addresses listed below and registered with the ECF system for this matter.

Andrew D. Manitsky, Esq.; amanitsky@lynnlawvt.com
Paul S. Rosenlund, Esq.; PSRosenlund@duanemorris.com,
Anthony J. Fitzpatrick, Esq.; AJFitzpatrick@duanemorris.com
Carolyn A. Alenci, Esq.; CAAlenci@duanemorris.com

Dated September 16, 2016:

FOX LAW GROUP, LLC

/s/ Bradley T. Fox
Bradley T. Fox, Esq. (*pro hac vice*)
Attorney for KneeBinding, Inc.
528C Main Street
P.O. Box 1305
Durango, CO 81301
Telephone: (970) 317-3580
Facsimile: (866) 348-4107
brad@foxgroupllc.com

Exhibit H

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

23483 7590 06/28/2011
WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

NOTIFICATION DATE	DELIVERY MODE
06/28/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

teresa.carvalho@wilmerhale.com
whipusptopairs@wilmerhale.com

Office Action Summary	Application No.	Applicant(s)	
	12/984,293	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	BRIDGET AVERY	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 January 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/20/11*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Claim 1 recites the limitation "the first surface" in line 8. There is insufficient antecedent basis for this limitation in the claim.

3. Claim 1 recites the limitation "the second surface" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Weigl et al. (US Patent 6,165,883).

Weigl et al. teaches a vector decoupling assembly for isolating two or more (vertical and lateral) force vectors applied to a safety binding securing a heel portion of a ski boot (2) to a ski (1), including: a lower heel assembly (4, 7) attached to the ski (1), as stated in col. 4, lines 10 and 11; an upper heel assembly (12) coupled to the lower

heel assembly (4, 7) and having a lateral release assembly (see housing 17, lever 27, spring 19, locking element 9) for applying lateral securing pressure to the ski boot (2); a linkage element (bearing block 22) fixedly attached to the lateral release assembly (17, 27, 19, 9); where the linkage element (22), a first surface (27a) and a second surface (recess 8) cooperate to limit motion of the lateral release assembly (17, 27, 19, 9) to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski (1).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Korger et al. shows a safety clamp for ski binding employing a combined vertical and horizontal swing catch.

Hashioka shows a releaseable ski boot heel binding.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIDGET AVERY whose telephone number is (571)272-6691. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver, can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://portal.uspto.gov/external/portal.

Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Bridget Avery/
Examiner, Art Unit 3618

/HAU PHAN/

Primary Examiner, Art Unit 3618

Docket No.: 2003127.00122US3
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	2029
Application No.:	12/984,293	Art Unit:	3618
Filed:	January 4, 2011	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION UNDER 37 C.F.R. 1.111

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated June 28, 2011, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski;

an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly for applying lateral securing pressure to the ski boot;

a linkage element fixedly attached to the lateral release assembly;

wherein the linkage element, ~~the~~ a first surface and ~~the~~ a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

2. (New) The vector decoupling assembly of claim 1, wherein the first surface and the second surface are substantially parallel to one another.

3. (New) The vector decoupling assembly of claim 1, wherein the first surface and the second surface cooperate to limit motion of the linkage element to the longitudinal and horizontal plane of the ski.

4. (New) The vector decoupling assembly of claim 1, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence the force vectors applied to the vector decoupling assembly.

5. (New) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.

6. (New) The vector decoupling assembly of claim 5, wherein the motion of the lateral release assembly is at least partially rotational.

7. (New) The vector decoupling assembly of claim 5, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

8. (New) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

9. (New) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

10. (New) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves only in a first direction with respect to the neutral position.

11. (New) The vector decoupling assembly of claim 10, wherein the motion of the lateral release assembly is at least partially rotational.

12. (New) The vector decoupling assembly of claim 10, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

13. (New) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

14. (New) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to

move the lateral release assembly is non-linear.

REMARKS

This paper is responsive to the non-final Office Action dated June 28, 2011. Claim 1 has been amended. Claims 2 through 12 have been added. All amendments are supported by the specification as filed. No new matter has been added.

At paragraph 1 of the Office Action, the Examiner rejects claim 1 under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Examiner identifies two instances of insufficient antecedent basis. Accordingly, Applicant amends claim 1 to recite "a first surface" in place of "the first surface." Similarly, Applicant amends claim 1 to recite "a second surface" in place of "the second surface. With this amendment, the rejection is no longer proper and should be withdrawn.

At paragraph 4 of the Office Action, the Examiner rejects claim 1 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,165,883 (Weigl). The Applicant traverses this rejection for at least the following reasons.

Claim 1 requires that "the linkage element, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski". The Applicant submits that Weigl does not limit motion of a lateral release assembly to any plane, let alone to a plane defined by the longitudinal and horizontal axes of the ski.

At paragraph 4 of the Office Action (top of page 3), the Examiner identifies the claim limitation of "lateral release assembly" as "housing 17, lever 27, spring 19 and locking element 9" from Weigl (e.g., from Figure 4 of Weigl). Examiner further identifies the claim limitation of "lower heel assembly" as "support plate 4" and "holding part 7".

Weigl teaches that the assembly of components identified as the lateral release assembly (9, 17, 19 and 27) is coupled to the lower heel assembly (4 and 7) through the connection of the locking

element 9 to the holding part 7 (see Figure 4). Specifically, Weigl describes the following at column 4, lines 20-24:

> "The holding part 7 has an approximately Z-shaped constructed member extending upwardly from the support plate 4. The Z-shaped member has a recess 8 therein for receiving the stem of a mushroom-shaped locking element 9. The development of the holding part 7 is furthermore recognizable by also looking at the embodiment according to FIGS. 9 and 10."

A careful evaluation of the locking element 9 as depicted in Weigl Figure 4 and Figures 6 through 10 clearly shows that the shape of locking element 9 where it contacts the holding part 7 allows for not only up and down movement but also side to side movement and any combination thereof. In other words, the locking element 9 allows movement within three spatial dimensions of the lateral release assembly (9, 17, 19 and 27) and clearly does not limit the lateral release assembly to a plane defined by the longitudinal and horizontal axes of the ski (i.e., the ski's longitudinal and horizontal plane). Thus, Weigl does not teach or suggest all of the elements of claim 1, so this rejection is improper and should be withdrawn.

Further, the Examiner identifies Weigl reference numbers 22 (bearing block), 27a (enlarged hole or guideway) and 8 (recess in holding part 7) as the linkage element, the first surface and the second surface, respectively, of claim 1. However, it is unclear how the bearing block 22, the enlarged hole or guideway 27a and the recess 8 cooperate to limit motion of the lateral release assembly to within a plane. As described above, motion of the lateral release assembly is not limited to within a plane for the Weigl device.

For at least these reasons, claim 1 should be allowable. Applicant further adds claims 1 through 12, which all depend from base claim 1, either directly or through intervening claims. All new claims are supported throughout the specification as-filed. For example, claims 2, 3 – see FIG. 2; claim 4 – see FIGs. 3 and 4; claims 5-12 – see paragraphs [0048] through [0059].

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant encloses the required petition and fee for a Three-Month Extension of Time. Applicant believes that no other fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0219, under Order No. 2003127.00122US3 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: December 20, 2011

/Ronald R. Demsher/
Ronald R. Demsher
Registration No.: 42,478
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

23483 7590 07/09/2012

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

NOTIFICATION DATE	DELIVERY MODE
07/09/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

teresa.carvalho@wilmerhale.com
whipusptopairs@wilmerhale.com

Office Action Summary	Application No.	Applicant(s)	
	12/984,293	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	BRIDGET AVERY	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-14* is/are pending in the application.

5a) Of the above claim(s) *10-14* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 10-14 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the structure required to restrict side-to-side movement of the tongue 60a to block lateral heel release in one lateral direction is different from the structure defined in the claim that applicant filed on January 4, 2011 and received an Office Action on June 28, 2011. Accordingly, the search and examination for the invention defined in claims 10-14 would be burdensome.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10-14 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Applicant's claim recitation "wherein the lateral release assembly is maintained in a predetermined neutral position in the absence the force vectors applied to the vector

decoupling assembly" is unclear and confusing. For the purposes of advance prosecution of the application, the claim will be treated as “wherein the lateral release assembly is maintained in a predetermined neutral position in the absence **of** force vectors applied to the vector decoupling assembly".

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Stritzl et al. (US Patent 4,858,946).

Stritzl et al. teaches a vector decoupling assembly for separating and isolating two or more force vectors (the first being a force from a forward fall and the second being the force from a torsion fall) applied to a safety binding (2) securing a heel portion of a ski boot to a ski (1), including: a lower heel assembly (8) attached to the ski (1); an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly (locking pin 15a) for applying lateral securing pressure (via spring 21 and tread spur 7) to the ski boot; a linkage element (15) fixedly attached to the lateral release assembly (15a); wherein the linkage assembly (15a), a first surface defined by base (16a) and a second surface defined by roller (19) cooperate to limit motion of the lateral release assembly (15a) to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski (1). It is noted that the roller (19) rolls along a horizontal cam (3a) where the lateral release assembly moves horizontally within a plane with no vertical movement as shown in Figures 1 and 2. Regarding **claim 2**, the first surface (16a) and the second surface (19) are substantially parallel to

one another as shown in Figure 1. Regarding **claim 3**, the first surface (16a) and the second surface (19) cooperate to limit motion of the linkage element (15) to the longitudinal and horizontal plane of the ski (1). Regarding **claim 4**, the lateral release assembly (15a) is maintained in a predetermined neutral position (defined by the center of cam 3a) in the absence of force vectors applied to the vector decoupling assembly. Regarding **claim 5**, the lateral release assembly moves in both a first direction (left) and a second direction (right) with respect to the neutral position as clearly shown in Figure 2. Regarding **claim 6**, the motion of the lateral release assembly is at least partially rotational based on the movement of the second surface (roller 19) and the shape of the horizontal cam (3a). Regarding **claim 7**, a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position because of the shape of the horizontal cam (3a) and because of the pressure spring (21). Regarding **claims 8 and 9**, a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear and non-linear in as much as applicant's because the assembly of Stritzl et al. is laterally released during a torsion fall which involves twisting which is linear and non-linear.

Response to Arguments

6. Applicant's arguments with respect to claim 1 has been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Freisinger et al. shows a safety ski binding.

Jungkind shows a safety ski binding having a pivotable sole plate.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIDGET AVERY whose telephone number is (571)272-6691. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver, can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J. ALLEN SHRIVER II/
Supervisory Patent Examiner, Art Unit 3618

/Bridget Avery/

Examiner, Art Unit 3618

Docket No.: 2003127.00122US3
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	2029
Application No.:	12/984,293	Art Unit:	3618
Filed:	January 4, 2011	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CONTINUED EXAMINATION PURSUANT TO 37 C.F.R. 1.114 AND AMENDMENT

Dear Madam:

INTRODUCTORY COMMENTS

In response to the Final Office Action dated July 9, 2012, finally rejecting claims 1-9. Applicant respectfully request entry of this Amendment that accompanies a Request for Continued Examination with a three-month extension of time attached herewith. Please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski;

an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly for applying lateral securing pressure to the ski boot;

a linkage element fixedly attached to the lateral release assembly;

wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

2. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface are substantially parallel to one another.

3. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface cooperate to limit motion of the linkage element to the longitudinal and horizontal plane of the ski.

4. (Currently amended) The vector decoupling assembly of claim 1, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence ~~the~~ of force vectors applied to the vector decoupling assembly.

5. (Previously presented) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.

6. (Previously presented) The vector decoupling assembly of claim 5, wherein the motion of

the lateral release assembly is at least partially rotational.

7. (Previously presented) The vector decoupling assembly of claim 5, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

8. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

9. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

10. (Withdrawn) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves only in a first direction with respect to the neutral position.

11. (Withdrawn) The vector decoupling assembly of claim 10, wherein the motion of the lateral release assembly is at least partially rotational.

12. (Withdrawn) The vector decoupling assembly of claim 10, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

13. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

14. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

REMARKS

This paper is responsive to the Office Action dated July 9, 2012. By this paper, claim 4 has been amended, and claims 9 through 14 have been withdrawn. No new matter has been added.

At paragraph 2 of the Office Action, the Examiner withdraws claims 10-14 as being directed to a non-elected invention. Accordingly, the Applicant marks claims 10-14 as withdrawn. Applicant intends to pursue those claims in a Divisional Application.

At paragraph 3 of the Office Action, the Examiner rejects claims 4-9 under 35 U.S.C. §112, second paragraph, as being indefinite. The Applicant amends claim 4 to recite ". . . in the absence *of* force vectors . . ." rather than ". . . in the absence *the* force vectors . . ." as the Examiner suggests. Accordingly, that rejection should be withdrawn.

At paragraph 5 of the Office Action, the Examiner rejects claims 1-9 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,858,946 to Stritzl et al. (hereinafter 'Stritzl'). The Applicant disagrees with the Examiner for at least the following reasons.

1. Stritzl does not teach or suggest the claim 1 element, "an upper heel assembly . . . having a lateral release assembly for applying lateral securing pressure to the ski boot" as the Examiner asserts. The Examiner indicates that the locking pin 15a of Stritzl teaches the lateral release assembly, which applies lateral pressure to the ski boot via spring 21 and tread spur 7. However, as Stritzl figures 1 and 2 and col. 3 lines 39 to 44 show, the tread spur 7 does not include any side elements that would enable applying lateral securing pressure to the ski boot. The tread spur 7 is constructed and arranged to provide securing pressure to the back of the ski boot rather than to the sides. (*See, e.g.*, "The tread spur 7 is designed in a known manner to enable the sole support 6 to swing upward in the case of a rearward torsion fall." 3:39-41, emphasis added).

2. Stritzl does not teach or suggest a linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly, as claim 1 requires. The

Examiner asserts that in Stritzl, the locking pin 15 is the linkage element, the base 16a of the bearing block is the first surface and the roller 19 is the second surface. The Applicant disagrees that these three elements of Stritzl cooperate to limit motion of the lateral release assembly (i.e., 15a). Stritzl describes operation of the locking pin 15a at 3:51-62. This text of Stritzl, copied below, describes the pivoting of the heel support once the locking pin 15a is pulled out of the locking fork 16d, but does not teach or suggest any limiting of the locking pin 15a to a particular plane as required by claim 1.

> "In the case of a torsion fall of the skier the sole plate 8 is twisted about a pivot axle 4 against the force of the locking spring 25 which acts upon the roller 78. At the same time, the roller 19 rolls along the cam 3a. The roller 78 lifts the sole support portion 6 of heel holder 2 until the release point of the sole support portion 6 has been reached. If the sole plate 8 is sufficiently swung out, the locking pin 15a of the axial member 15 is pulled out from the slot between the two prongs of the locking fork 16d, allowing the heel support 2 to be pivoted about its vertical axial member 61 and providing lateral release of the ski boot." Stritzl, 3:51-62.

For at least these reasons, Stritzl does not teach or suggest each and every limitation of claim 1, so that claim should be allowable. Claims 2-9 depend from allowable claim 1, so those claims should be allowable.

At least in view of the above amendment and comments, applicant believes the pending application is in condition for allowance. If the Examiner disagrees with the arguments presented above, the Applicant requests a telephone Interview to expedite prosecution.

Applicant encloses the required petition and fee for a Three-Month Extension of Time. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 08-0219, under Order No. 2003127.00122US3 from which the undersigned is authorized to draw.

Respectfully submitted,

Dated: January 9, 2013

__/Ronald R. Demsher/_____
Ronald R. Demsher
Registration No.: 42,478
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

23483 7590 04/08/2013

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

NOTIFICATION DATE	DELIVERY MODE
04/08/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

teresa.carvalho@wilmerhale.com
whipusptopairs@wilmerhale.com

Office Action Summary	Application No.	Applicant(s)	
	12/984,293	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	BRIDGET AVERY	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2013*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-14* is/are pending in the application.

5a) Of the above claim(s) *10-14* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gertsch (US Patent 4,505,494).

Gertsch teaches a vector decoupling assembly for separating and isolating two or more force vectors (the first being a force from a forward fall and the second being the force from a torsion fall) applied to a safety binding (14) securing a heel portion of a ski boot to a ski (1), including: a lower heel assembly (17) attached to the ski (1); an upper heel assembly (pin 15) coupled to the lower heel assembly and having a lateral release assembly (16) for applying lateral securing pressure (via spring 21) to the ski boot; a linkage element (19) fixedly attached to the lateral release assembly (16); wherein the linkage assembly (16), a first surface defined by slot (26) and a second surface defined by the opening for pin (25) cooperate to limit motion of the lateral release assembly (16) to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski (1). Regarding **claim 2**, the first surface and the second surface are substantially parallel to one another as shown in Figure 1. Regarding **claim 3**, the first surface and the second surface cooperate to limit motion of the linkage element (19) to the longitudinal and horizontal plane of the ski (1). Regarding **claim 4**, the lateral release assembly (16) is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly. Regarding **claim 5**, the lateral release assembly moves in both a first

direction (left) and a second direction (right) with respect to the neutral position as clearly shown in Figure 6. Regarding **claim 6**, the motion of the lateral release assembly is at least partially rotational based on the movement of the second surface. Regarding **claim 7**, a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral. Regarding **claims 8 and 9**, a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear and non-linear in as much as applicant's because the assembly of Gertsch is laterally released during a torsion fall which involves twisting which is linear and non-linear.

Response to Arguments

2. Applicant's arguments with respect to claim 1 has been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIDGET AVERY whose telephone number is (571)272-6691. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver, can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Bridget Avery/
Examiner, Art Unit 3618

/J. ALLEN SHRIVER II/
Supervisory Patent Examiner, Art Unit 3618

Docket No.: 2003127.00122US3
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	2029
Application No.:	12/984,293	Art Unit:	3618
Filed:	January 4, 2011	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL UNIT		

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE AFTER FINAL ACTION UNDER 37 C.F.R. 1.116

Dear Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated April 8, 2013, finally rejecting claims 1-9, please reconsider the above-identified U.S. patent application in light of the following remarks:

The pending claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski;

an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly for applying lateral securing pressure to the ski boot;

a linkage element fixedly attached to the lateral release assembly;

wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

2. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface are substantially parallel to one another.

3. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface cooperate to limit motion of the linkage element to the longitudinal and horizontal plane of the ski.

4. (Previously presented) The vector decoupling assembly of claim 1, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly.

5. (Previously presented) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.

6. (Previously presented) The vector decoupling assembly of claim 5, wherein the motion of the lateral release assembly is at least partially rotational.

7. (Previously presented) The vector decoupling assembly of claim 5, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

8. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

9. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

10. (Withdrawn) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves only in a first direction with respect to the neutral position.

11. (Withdrawn) The vector decoupling assembly of claim 10, wherein the motion of the lateral release assembly is at least partially rotational.

12. (Withdrawn) The vector decoupling assembly of claim 10, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

13. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

14. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a

position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

REMARKS

This paper is responsive to the non-final Office Action dated April 8, 2013. By this paper, none of the pending claims have been amended.

The Office Action Summary shows this Office Action to be non-final, and the Applicant believes this to be correct. At paragraph 3 of the Office Action, however, the Examiner states that this Office Action is final. In an abundance of caution, the Applicant has filed an RCE along with this response. If the Examiner determines that the Office Action is truly non-final, the Applicant withdraws the RCE and requests a refund.

Claim Rejections - 35 USC § 102

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gertsch (US Patent 4,505,494). Applicant traverses these rejections for at least the following reasons.

The Examiner identifies element 17 of Gertsch as the lower heel assembly of claim 1. Element 17, however, is actually a base plate for a lateral release means associated with the toe ball portion of a ski boot, rather than the heel assembly:

> "Portion 3b forms a foot plate for the toe ball portion of a ski boot and it rests on a rest means which is in the form of a strip 12 with good sliding properties disposed on the upper surface of the ski. The foot plate carries on its upper surface a transversely extending support rail 13 for supporting the ski boot sole. At the forward end of portion 3b a toe retainer means 14 is fixedly mounted which overlaps the ski boot sole with a sole hold-down member 15. The toe retainer means 14 is coupled with a lateral release means 16 mounted on a base plate 17 provided on the ski." Gertsch col. 6 lines 5-15 (emphasis added).

The elements of Gertsch to which the Examiner refers for remaining claim elements relate to the toe portion of the ski boot rather than the heel portion as recited in the claims.

The Examiner identifies element 15 as the upper heel assembly of claim 1. Element 15, however, is a "sole hold-down member" associated with the toe retainer means, rather than an upper heel assembly:

> "At the forward end of portion 3b a toe retainer means 14 is fixedly mounted which overlaps the ski boot sole with a sole hold-down member 15." Gertsch col. 6 lines 10-13 (emphasis added).

Regarding the claim 1 limitation of "an upper heel assembly . . . having a lateral release assembly for applying lateral securing pressure to the ski boot", the Examiner identifies Gertsch element 16 as the "lateral release assembly." While Gertsch describes element 16 as a "lateral release means," the Gertsch figures and text clearly describe this lateral release means as associated with the "toe retainer means" rather than the upper heel assembly as recited in the claims:

> "Portion 3b forms a foot plate for the toe ball portion of a ski boot and it rests on a rest means which is in the form of a strip 12 with good sliding properties disposed on the upper surface of the ski. The foot plate carries on its upper surface a transversely extending support rail 13 for supporting the ski boot sole. At the forward end of portion 3b a toe retainer means 14 is fixedly mounted which overlaps the ski boot sole with a sole hold-down member 15. The toe retainer means 14 is coupled with a lateral release means 16 mounted on a base plate 17 provided on the ski." Gertsch col. 6 lines 5-15 (emphasis added).

The Examiner identifies element 19 of Gertsch as the linkage element of claim 1. Element 19, however, is a housing containing a piston. Claim 1 further requires "the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly." For this limitation, the Examiner identifies alleged cooperation of "the linkage assembly (16), a first surface defined by slot (26) and a second surface defined by the opening for pin (25)." According to claim 1, the first of these three cooperating elements is the linkage element, which the Examiner previously identified as Gertsch element 19, not 16. Assuming the Examiner meant for the first element to be 19 rather than 16, these three elements of Gertsch do not limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski, as required by claim 1. Further, as described above, these three elements of Gertsch are part of a toe retention assembly rather than a heel assembly. Claim 1 requires the linkage element to be fixedly attached to the lateral release assembly, which is part of the upper heel assembly.

For at least the reasons set forth above, claim 1 should be allowable. Since claims 2-9 depend from allowable claim 1, those claims should also be allowable. Accordingly, Applicant believes the pending application is in condition for allowance.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 08-0219, under Order No. 2003127.00122US3, and please credit any excess fees to the same deposit account.

Respectfully submitted,

Dated: October 8, 2013

/Ronald R. Demsher/
Ronald R. Demsher
Registration No.: 42,478
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

23483 7590 03/04/2014

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

NOTIFICATION DATE	DELIVERY MODE
03/04/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

teresa.carvalho@wilmerhale.com
whipusptopairs@wilmerhale.com

Office Action Summary	Application No. 12/984,293	Applicant(s) HOWELL, RICHARD J.	
	Examiner BRIDGET AVERY	Art Unit 3618	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/8/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-14* is/are pending in the application.

5a) Of the above claim(s) *10-14* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

Claims 10-14 are withdrawn from consideration as being directed to a non-elected invention.

An action on the merits of claims 1-9 follows.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gertsch (US Patent 4,505,494).

Gertsch teaches a vector decoupling assembly for separating and isolating two or more force vectors (the first being a force from a forward fall and the second being the force from a torsion fall) applied to a safety binding (14) securing a heel portion of a ski boot to a ski (1), including: a lower heel assembly (17) attached to the ski (1); an upper heel assembly (pin 18) coupled to the lower heel assembly and having a lateral release assembly (16) for applying lateral securing pressure (via spring 21) to the ski boot; a linkage element (19) fixedly attached to the lateral release assembly (16); wherein the linkage assembly (19), a first surface defined by slot (26) and a second surface defined by the opening for pin (25) cooperate to limit motion of the lateral release assembly (16) to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski (1). Regarding **claim 2**, the first surface and the second surface are substantially parallel to one another as shown in Figure 1.

Regarding **claim 3**, the first surface and the second surface cooperate to limit motion of the linkage element (19) to the longitudinal and horizontal plane of the ski (1). Regarding **claim 4**, the lateral release assembly (16) is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly. Regarding **claim 5**, the lateral release assembly moves in both a first direction (left) and a second direction (right) with respect to the neutral position as clearly shown in Figure 6. Regarding **claim 6**, the motion of the lateral release assembly is at least partially rotational based on the movement of the second surface. Regarding **claim 7**, a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral. Regarding **claims 8 and 9**, a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear and non-linear in as much as applicant's because the assembly of Gertsch is laterally released during a torsion fall which involves twisting which is linear and non-linear.

Response to Arguments

2. Applicant's arguments filed October 8, 2013 have been fully considered but they are not persuasive.

3. On page 5, applicant argues "The Examiner identifies element 17 of Gertsch as the lower heel assembly of claim 1. Element 17, however, is actually a base plate for a lateral release means associated with the toe ball portion of a ski boot, rather than the heel assembly" and "While Gertsch describes element 16 as a lateral release means, the Gertsch figures and text clearly describe this lateral release means as associated

with toe retainer means rather than the upper heel assembly...." Contrary to applicant's argument, the lower heel assembly 17 and the lateral release means 16 are both also associated with the heel portion of a ski boot via heel retainer 5, as stated in col. 6, lines 59-68 and col. 7, line 1.

4. Applicant's recitation of a "a lower heel assembly" and "an upper heel assembly" in claim 1 fails to preclude a rejection in view of Gertsch because applicant has failed to define any distinguishing structure. It is further noted that applicant's use of the term "assembly" is extremely broad and merely requires a number of parts associated with a heel.

5. Applicant argues that the linkage assembly (housing19), the slot (guide 26) and the pin 25 of Gertsch "do not limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski." The Examiner disagrees because the slot (guide 26) is designed to permit limited play of the pin 25 in the longitudinal direction of the ski. Note the teaching of "the elastic range limit" in col. 7, lines 8-10.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIDGET AVERY whose telephone number is (571)272-6691. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver, can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Bridget Avery/
Examiner, Art Unit 3618

/J. ALLEN SHRIVER II/

Supervisory Patent Examiner, Art Unit 3618

Docket No.: 2003127.00122US3
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	2029
Application No.:	12/984,293	Art Unit:	3618
Filed:	January 4, 2011	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL UNIT		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AFTER FINAL ACTION UNDER 37 C.F.R. 1.116

Dear Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated March 4, 2014 finally rejecting claims 1-9, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

A Request for Continued Examination and appropriate fee, as well as a request for a one-month extension of time and appropriate fee, are enclosed herewith.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski;

an upper heel assembly coupled to the lower heel assembly and having a lateral release assembly for applying lateral securing pressure to the ski boot, the upper heel assembly comprising an upper heel housing that is configured to compress the heel portion of the ski boot downward;

a linkage element fixedly attached to the lateral release assembly;

wherein the linkage element, a first surface and a second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski.

2. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface are substantially parallel to one another.

3. (Previously presented) The vector decoupling assembly of claim 1, wherein the first surface and the second surface cooperate to limit motion of the linkage element to the longitudinal and horizontal plane of the ski.

4. (Previously presented) The vector decoupling assembly of claim 1, wherein the lateral release assembly is maintained in a predetermined neutral position in the absence of force vectors applied to the vector decoupling assembly.

5. (Previously presented) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves in both a first direction and a second direction with respect to the neutral position.

6. (Previously presented) The vector decoupling assembly of claim 5, wherein the motion of the lateral release assembly is at least partially rotational.

7. (Previously presented) The vector decoupling assembly of claim 5, wherein a force required

to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

8. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

9. (Previously presented) The vector decoupling assembly of claim 7, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

10. (Withdrawn) The vector decoupling assembly of claim 4, wherein the lateral release assembly moves only in a first direction with respect to the neutral position.

11. (Withdrawn) The vector decoupling assembly of claim 10, wherein the motion of the lateral release assembly is at least partially rotational.

12. (Withdrawn) The vector decoupling assembly of claim 10, wherein a force required to move the lateral release assembly increases as the lateral release assembly moves away from the neutral position.

13. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is linear.

14. (Withdrawn) The vector decoupling assembly of claim 12, wherein a relationship between a position of the lateral release assembly with respect to the neutral position and the force required to move the lateral release assembly is non-linear.

REMARKS

Claims 1-14 are pending. Claims 10-14 have been withdrawn. Claims 1-9 have been rejected under 35 USC §102. Claim 1 has been amended, and support for the amendment can be found in at least paragraph 37 of the Application. No new subject matter has been added.

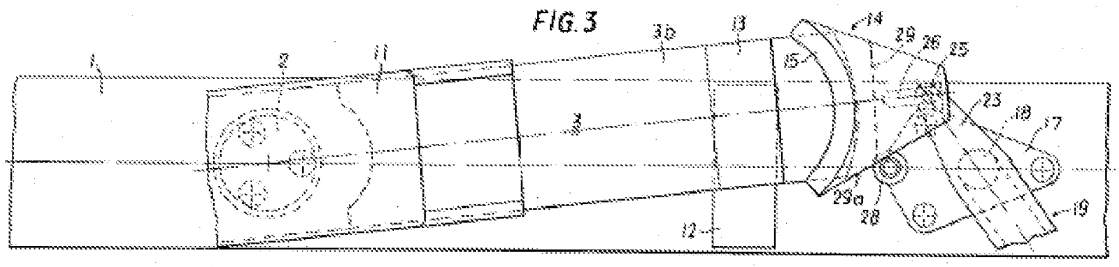
Rejections Under 35 U.S.C. §102

Claims 1-9 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,505,494 to Gertsch. Applicant respectfully traverses these rejections for at least the following reasons.

In Applicant's previous response filed October 8, 2013, Applicant explained that the lower heel assembly in the currently pending claims cannot correspond to element 17 of Gertsch as element 17 is actually a base plate for a lateral release means associated with the *toe ball portion* of a ski boot, rather than the heel portion of a ski boot. Office Action Response dated 10/8/13, p. 5. Furthermore, the upper heel assembly in the currently pending claims cannot correspond to the sole hold-down member 15 of Gertsch for the same reason: element 15 is used to hold down a *toe* portion of a ski boot, and not the heel portion. *See id.* at pp. 5-6. However, in the Office Action dated March 4, 2014, the Examiner once again rejected the claims over Gertsch. In particular, in the Response to Arguments section of the Office Action, the Examiner pointed Applicant's attention to column 6, lines 59-68 and column 7, line 1 of Gertsch as allegedly showing that Gertsch's lower heel assembly 17 and the lateral release means 16 are associated with the heel portion of a ski boot.

Applicant respectfully disagrees that the cited portions of Gertsch are associated with the heel portion of a ski boot. However, to expedite prosecution, Applicant has amended claim 1 to further clarify that the claimed upper heel assembly is for engaging with the heel portion of a ski boot. In particular, claim 1 now requires that the upper heel assembly comprise "an upper heel housing that is configured to compress a heel portion of a ski boot downward." Applicant submits that the cited portions of Gertsch do not disclose the upper heel assembly as currently claimed.

The current Office Action points to pin 18 of Gertsch as disclosing the claimed upper heel assembly, and to base plate 17 of Gertsch as disclosing the claimed lower heel assembly. Office Action dated 3/4/14, p. 2. However, both of these components are associated with toe retainer means 14, as illustrated in FIG. 3.



While toe retainer 14 comprises a sole hold-down member 15, this member is only used to hold down a toe portion of a ski boot, as can be seen in Figure 3 and in the following passage from Gertsch:

> Portion 3b forms a foot plate for the ***toe ball portion of a ski boot*** and it rests on a rest means which is in the form of a strip 12 with good sliding properties disposed on the upper surface of the ski . . . . ***At the forward end of portion 3b a toe retainer means 14 is fixedly mounted which overlaps the ski boot sole with a sole hold-down member 15***. The toe retainer means 14 is coupled with a lateral release means 15 mounted on a base plate 17 provided on the ski.

Gertsch , col. 6, ll. 5-15 (emphasis added).

Therefore neither sole hold-down member 15 nor any cited component of Gertsch can correspond to the claimed "upper heel housing that is configured to compress a ***heel*** portion of a ski boot downward."

Furthermore, the portions of Gertsch that Examiner points to in the Response to Arguments section does not disclose the claimed "upper heel housing." Column 6, lines 59-68 and column 7, line 1 of Gertsch merely disclose that when control cam 29 disengages from the abutment roller 28,

the portion 3b with the toe retainer 14 gets free and moves away from the heel retainer 5 in the longitudinal direction of the plate. Through the movement of the toe retainer 14 away from the heel retainer 5 the ski boot is released. None of this disclosure relates to an "upper heel housing that is configured to compress a heel portion of a ski boot downward."

For at least the reasons set forth above, Applicant submits that claim 1 is patentable over Gertsch. Claims 2-9 depend from claim 1 and incorporates its limitations, and are therefore patentable for at least the same reasons.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant is submitting herewith the required fee for a Request for Continued Examination, as well as the required fee for a one month extension of time, and believes no other fee is due. However, please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 08-0219, under Order No. 2003127.00122US3, and please credit any excess fees to the same deposit account.

Respectfully submitted,

Dated: June 24, 2014

/Donald R Steinberg/
Donald R. Steinberg
Registration No.: 37,241
Attorney for Applicant(s)

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000 (telephone)
(617) 526-5000 (facsimile)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

23483 7590 10/03/2014

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER
AVERY, BRIDGET D

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 10/03/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

TITLE OF INVENTION: ALPINE SKI BINDING HEEL UNIT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	01/05/2015

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23483 7590 10/03/2014
WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

TITLE OF INVENTION: ALPINE SKI BINDING HEEL UNIT

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	01/05/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
AVERY, BRIDGET D	3618	280-628000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
❑ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/984,293	01/04/2011	Richard J. Howell	2003127.00122US3	2029

23483 7590 10/03/2014

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 10/03/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 12/984,293	Applicant(s) HOWELL, RICHARD J.	
	Examiner BRIDGET AVERY	Art Unit 3618	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6/24/14*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-9*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/J. ALLEN SHRIVER II/
Supervisory Patent Examiner, Art Unit 3618

1. The present application is being examined under the pre-AIA first to invent provisions.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

3. Claims 10-14 have been canceled.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIDGET AVERY whose telephone number is (571)272-6691. The examiner can normally be reached on 7:00AM-5:30PM Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Allen Shriver can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. ALLEN SHRIVER II/
Supervisory Patent Examiner, Art Unit 3618

/BRIDGET AVERY/
Examiner, Art Unit 3618

Exhibit L

Search

Cart

Menu Cart

Howell Ski Bindings

Home Catalog Tech Info Blog **About us**

About Howell Ski Bindings

At age 6, Rick Howell was skiing in front of his dad when Rick was hit by another skier who tried to ski between them — impacting Rick from behind. Rick fell and sustained a spiral tibia fracture *(that's a ski-binding toe-related problem)*. Aside from the feelings about the behavior of the other skier, Rick's dad — *an engineering technician* — was concerned because he had mounted and adjusted Rick's bindings. Rick's dad then re-applied himself even more diligently to dial-in Rick's bindings according to the latest methods. Three years later, Rick sustained a green-stick tibia fracture while racing *(that's a ski-binding heel-related problem and an AFD-location problem)*. Horrified, Rick's dad took the skis and boots to a summer-home neighbor, Gordon Lipe, who was at that time the leading 'safety' expert on ski bindings in North America. Lipe wrote critical 'test reports' on ski bindings in almost every issue of SKIING magazine throughout the late 1960's and early '70's. Lipe also was the original developer of the 'Weight-&-Ability' method to select release settings; the developer of the first ski binding test equipment — *the Lipe Release Check*; and the developer of the ski industry's 1st low-friction AFD — *the Lipe Slider*. In SKIING magazine, Lipe wrote and illustrated how to modify bindings to enhance 'safety'. Three years later, during race-training, Rick sustained a complex spiral / bending tibia fracture *(that's a problem involving the toe, the heel, and the AFD)*.

It was at that moment, Rick Howell knew what his life's work would be.

"**I**f this happened after the leading expert serviced my bindings then something's wrong with bindings, settings, testing, service — or all four. I must solve this problem."

To learn what might have been wrong with the bindings, the settings, the testing, or the advice — one year later, at age 13, Rick became Gordon Lipe's part-time, weekend, lab assistant for the SKIING test reports.

Over the years, Rick learned that Lipe's obsession with 'safety' was not balanced with actual skiing. Lipe's theories were based on Lipe's background as a brilliant mechanic (1). But Lipe could barely ski. Rick was an active ski racer (2). When Rick began to modify his bindings to meet Lipe's suggestions, he couldn't ski without pre-release or—*ironically*—without elevated settings to avoid pre-release. Elevated settings defeated Lipe's notion of 'safety'. The concept of 'safety' began to take-on a different meaning for Rick, because pre-release is dangerous — perhaps more dangerous than a no-release condition. Pre-release can cause impact with a tree, a lift-tower, another skier — or even a firm snow surface — possibly causing severe upper-body injury. Rick believed that a 'properly functioning' binding should provide retention at chart settings (further ironically, because 'chart settings' were originally developed by Lipe). Solving this problem —*in part*—at age 15, Rick had a local machine shop fabricate custom ski binding components that he designed to enhance edge control without elevated settings.

Two years later while Rick was visiting his sister, Beverly Howell, at Burke Mountain Academy and while still in high school, a major French ski binding company — *Salomon SA* — came across his modified bindings and a deal was struck to integrate Rick's developments into what became the #1-selling ski binding in the world throughout the mid-1970's — *the Salomon 555*.

Completing high school, Rick scored 100% in AP-Biology and AP-Physics and accepted a partial athletic scholarship — *for ski racing* — at New England College (NEC) in Henniker, New Hampshire.

During the 70's while double majoring in civil engineering and business management at NEC, Rick became a solid competitor in the regional ski racing circuit (3) while racing on the hot-selling French bindings that he co-developed. *These bindings were, of course, further-modified by Rick. ;)* Rick conducted his undergraduate engineering thesis on ski-bindings at MIT's Draper Labs ('How Ski Bindings Affect Ski Vibration', co-authored by engineering classmate and ski-team member, Jeff Findeisen of Killington, Vermont). At the same time, Rick owned a small ski-binding service center located near the finish-line of the FIS-homogulated slalom racing trail at Pat's Peak ski area in Henniker, New Hampshire — catering to a wide range of regional racers; co-developed (together with Gilbert Delouche & Claude Gantet of the same French binding company) methods to measure ski binding retention, on-slope and in the lab; and co-developed together with Wolfhart Hauser, MD, of Munich, Germany and Dr-Eng Peter Biermann of Stüttgart, Germany — *what*

became the 'DIN-System' — utilized worldwide over the next 37 years, each year by ~25-million skiers — *including today*. During the next 8 years — *from 1978 to 1986, starting at age 24* — Rick Howell was Product Manager (all 8-years at the U.S. operation) then also became the Director of Marketing (last 4-years of 8-years) for a major German ski binding company — *Geze* — within the US distribution operation—*winning the 'Glass Award' from the German-parent company for successful business accomplishments. Before Rick arrived, Geze ski bindings were 'worst-rated' by independent reviewers (Lipe and Ettlinger) in SKIING magazine. Then, 5-years after Rick's arrival, they became 'best rated' by Carl Ettlinger (4) of SKIING magazine and by Stuftung WarrenTest of Germany. The entire team at Geze caused this improvement, not just Rick. While Rick was Director of Marketing, the business that surrounded Geze ski bindings went from an unprofitable 2% brand-share to a profitable 20% brand-share within USA and Canada (largely due to the stewardship of Tim Jamieson and 20 of the best sales reps ever seen in USA). ((Independently, the ski-binding division of Geze was then successfully sold to Abel (Swiss watch company); then Abel sold the ski-binding unit to Group Bernard Tapie; the French government then sold Tapie's ski-binding assets (Look and Geze) to Rossignol.))*

While on a roll, Rick started his own company to invent, develop, manage the manufacturing, and distribute what became the world's 1st multi-utility-patented hands-off clipless bicycle pedals (*CycleBinding*) — *creating the category of hands-off clipless bicycle pedals.* CycleBinding, Inc. was later sold to Shelburne Corporation of Shelburne, Vermont. Eight years later, Rick successfully invented, developed, managed the start-up manufacturing, and managed the market-launch for the first complete line of utility-patented high-tech snowshoes & snowshoe bindings for Tubbs snowshoe company (5), which snowshoes and bindings remain — *during each of the past 25 consecutive years* — #1-selling, worldwide, including today.

During these developments and over the last 26-years, Rick lived and skied with his son and daughter in Stowe, Vermont where he continued to modify bindings to not pre-release while uniquely and patently being 'knee-friendly'.

During the Spring of 2016, Rick Howell presented the 1st scientifically-recognized biomechanical-validation behind the new retention-based valgus-dominant ACL-friendly engineering science — presented at the 35th SITEMSH skiing safety conference in Inawashiro, Japan and at the 17th ESSKA orthopedic research conference in Barcelona, Spain. At ESSKA-Barcelona, 3 leaders in the field stood — *including the chief physician of the German National Ski Team* — to endorse Rick Howell's biomechanical-validation. Receiving endorsements at these kinds of forums is unprecedented.

Here are links (select 1 of the 2) to two video-presentations given by Rick Howell at the ESSKA scientific-orthopedics congress in Barcelona, Spain in May, 2016 (6). The biomechanical-validation is not epidemiological: there is no prospective intervention study, yet. A fee of US$9.99 is requested to defray the biomechanical R&D and the video-production costs:

for Apple iPhone via Apple iTunes: [https://itunes.apple.com/us/app/acl-injury-thresholds-ski/id1106644894?ls=1&mt=8]

OR

for Android-based mobile via Google Play: [https://play.google.com/store/apps/details?id=com.retrieve.paid_retrieve_prod_3470]

More recently, on October 11, 2016, Rick Howell was granted new U.S. utility patent 9,463,370 that uniquely allows low stand-height in an unpatented (open) version of an alpine ski binding with non-pre-releasing lateral heel release.

Now, finally — *based on 46-years of biomechanical research, race-proven development, ski binding industry professional management experience and hands-on know-how* — Rick Howell introduces Howell SkiBindings.

This new, specialized-collection, of advanced alpine ski bindings delivers powerful retention. Powerful anti-pre-release. Never-before-seen edge-control. Liteness. Durability. Low stand-height. 'And the real possibility of ACL-friendly skiing (7). 'But most of all, ***Howell SkiBindings do not pre-release — at chart settings.*** That's a 1st in ski bindings. 'A long-sought 1st by Howell. 'And long-sought by all good skiers.

Finally.

The remarkable new line of Howell SkiBindings will be ready for shipment starting in October of 2018. A **30%** discount on the full-price and **free shipping** is provided **when reservation-deposits are placed at this time**. Reservation deposits for the 800 and 880 are $100; and for the 888, $200. Initial orders also include a full assortment of brake widths, a precision mounting template, special drill bit and tap, Howell ACL-Release Check, and on-line Technical Certification to mount, adjust and test Howell SkiBindings. These are 1st's, too.

To place a reservation-deposit now, select the 'Catalog' page (above), then select the model that's right for you.

Thank you for your confidence. *In return, we will deliver a new level of skiing confidence. Thank you, sincerely.*

— Rick Howell

Howell Ski Bindings

It was inevitable.

PO Box 1274, 79A Mansfield View Road, Stowe, Vermont 05672 USA
rick.howell@howellskibindings.com 1.802.793.4849

1— Gordon Lipe's father was the inventor of the automatic transmission and Gordon was the inherited-owner of Lipe Rollway Bearing Company. He and his father were gifted mechanics who made a fortune selling their automatic transmission technology to General Motors. Gordon Lipe lived on Skaneateles Lake in central New York.

2— While racing out of Cazenovia Ski Club in central New York, Rick earned positions on the New York State Ski Team in 1968, '69 and 1970.

3— Rick earned 29 FIS-points in the DH discipline of alpine ski racing — a handicap that placed him 5th in the U.S within his age group in 1976; on the Can-Am Team (so-called 'Eastern Automatics'); and on the New Hampshire State Ski Team. Separately, Rick also raced for the winning Division-1 New England College Ski Team — and was inducted into the NEC Athletic Hall of Fame in 2015.

4— Carl Ettlinger replaced Gordon Lipe after Lipe's 12-year authorship of the SKIING 'Binding Performance Reports'.

5— Tubbs snowshoes are not Howell. 'Tubbs' is owned by Newell Brands.

6— 'ESSKA': European Society of Sports Traumatology, Knee Surgery and Arthroscopy. ~4000 orthopedic clinicians and researchers attended the 2016 congress in Barcelona.

7— Not based on prospective intervention study: based on plausible biomechanical research presented at ISSS-Pontresena, Switzerland (2003); ISSS-Niigata, Japan (2005); SITEMSH-Inawashiro, Japan (2016); and ESSKA-Barcelona, Spain (2016).

'ISSS': International Society for Skiing Safety.

'SITEMSH': Société Internationale de Traumatologie et Médicine des Sports d'Hiver.

U.S. Patent 9,463,370 and other national and international patents-pending.

Latest News

First post

Hello fellow skiers & racers. I'm really excited to announce new Howell SkiBindings that provide a new level of skiing confidence. As many of you in the ski...

Quick Links

Search

About us

Follow Us

Exhibit W

DEALER LOOKUP City State Zip

MARKER

Bindings Helmets Goggles Body Protection Accessories Technology Athletes About 0

sixty-four years perfecting performance and protection

Page 1

King Pin

marker ski bindings featured video

Share This:

MARKER USA

Bindings
Helmets
Goggles
Body Protection
Accessories
Athletes
About
FAQ
News

TECHNOLOGY

Grip Walk
Sole I.D.
Kingpin Tech
MAP Tech
NMT Optics
Race XCELL

Privacy Policy
Warranty
CSPC Jr Binding testing results certificate I
CSPC Jr Binding testing results certificate II

QUICK LINKS

NEWSLETTER SIGNUP

your email address

Submit

Exhibit Y

A NEW KINGPIN: BEHIND MARKER'S TECH BINDING

BY TYLER COHEN SEPTEMBER 2, 2014 14 COMMENTS

Four years ago, Michi Bauchinger, an IFMGA-certified guide with a background in biomechanics, began working at Marker International. As binding product coordinator, he managed the team of three engineers who developed Marker's first-ever tech binding, the Kingpin, which they debuted last week in Nevados de Chillan, Chile.

While tech bindings have traditionally offered safety release at the toe and/or heel, the Kingpin is the first to meet DIN ISO 13992:2007. That means it's the first tech binding acknowledged by the TUV —the international certification body that validates product safety—to offer a certified DIN safety release. The Kingpin has a traditional tech-style toe and an alpine-like heel that offers lateral and vertical release. It will be available in December.

After three days of testing in corn, on ice and hardpack, I sat down with Michi to talk about developing the Kingpin, the challenges of building

a binding from scratch and the future of tech bindings.

Michi Buechers with the binding he helped develop in front of Volcan Chillan Nuevo, Chile. [Photo] Tyler Cohen

Backcountry: Three and a half years ago, when Marker decided to go in on this project, what was the plan?

Michi Buechers: When I started with Marker, we had the F10 and F12, but we felt we really hadn't reached the touring market. We saw this pintech market growing, and I knew from my experience that it's really a difference to tour with. It was obvious that, if we wanted to reach the touring market, it made sense to do it with a pintech binding. But we knew we didn't want to make a "me too" product....we wanted to create something new.

BCM: Did you see a big demand that you needed to fill?

MB: Yeah, of course. That was part of it. We also heard of problems with existing bindings, and we saw some potentials. Not a lot of products are perfect, and we saw lots of potential in the pintech.

GEAR REVIEWS

TESTERS' CHOICE: ANNA RIEK'S PICKS

The Backcountry Magazine Gear Guide is nothing without its testers—a group of 40 skiers who congregate every ... [Read More...]

TESTERS' CHOICE: DANA ALLEN'S PICKS

The Backcountry Magazine Gear Guide is nothing without its testers—a group of 40 skiers who congregate every ... [Read More...]

The Kingpin toe has six springs designed to improve retention. The small, black tabs are boot bumpers, intended to aide ease of entry. Mode change is achieved using the gold, underfoot lever. All the gold parts are forged aluminum and built by climbing-gear maker DMM. [Photo] Tyler Cohen

BCM: All of the sudden there are so many tech bindings available, many trying to achieve a better release. It's almost like you had a crystal ball when you started with this project.

MB: When we started [three years ago], that was a time when a lot of companies opened their eyes. There was the certain point when it was obvious that this part of the skiing market was growing. All of the sudden, that market got very interesting for several companies.

BCM: Do you see most of the growth among people wanting tech bindings in Europe or the U.S.?

MB: Both. In Europe it depends a little bit on the country. There are some countries where there are already 80 percent using pintech bindings, but there are some more conservative countries using mostly frame bindings. I think there was a turning point maybe two or three years ago where you saw more and more people using that pintech binding; people getting more aware of that system.

TRAINING SHOES: TESTED TRAIL RUNNERS

The peaks are collecting an ephemeral white coating about once a week, the leaves are turning in the valley, ... [Read More...]

2017 TESTERS' CHOICE: KEVIN MCCARTHY'S PICKS

The Backcountry Magazine Gear Guide is nothing without its testers—a group of 40 skiers who congregate every ... [Read More...]

2017 EDITORS' CHOICE GEAR

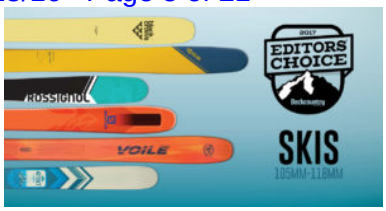
The Kingpin locked out and in tour mode. The heel offers two risers (7 and 13 degrees) in addition to a flat tour mode. [Photo] Tyler Cohen

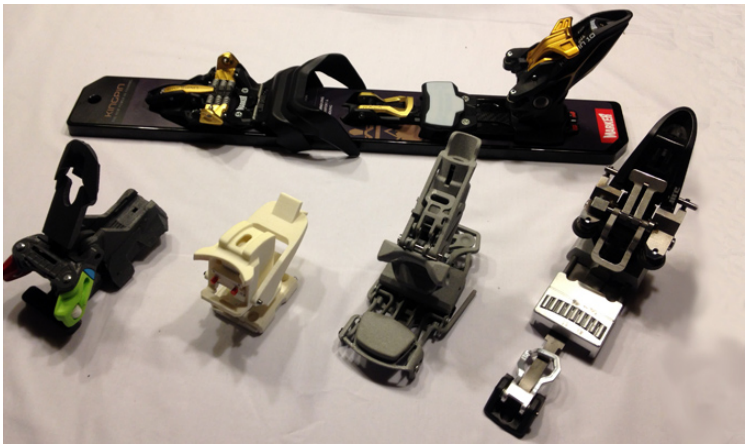
BCM: What was the biggest challenge with building the binding? Was there a single technical part that took a lot of time and energy?

MB: Of course there were many small details that we had to improve during the process, but in the end I think the hardest part was to find the right concept, the big picture. We had targets we wanted to reach in the end: we wanted DIN certification; we wanted a stronger heel; we wanted the handling [to be] as least as good as existing bindings; we wanted it lightweight. To pack all these points into a concept without creating a new boot standard was a big challenge and took us a long time.

BCM: Do you think there's been a race of sorts to become the first binding that is DIN ISO certified?

MB: Yeah. It looks like there are some other brands in the starting position. I think [getting our certification first] shows the knowledge of binding development in this company and what a strong team we have.





Various Kingpin concept heels and the real thing. [Photo] Tyler Cohen

BCM: What are some of the challenges you see with getting this binding out there?

MB: It looks heavier than it actually is, and I think we need to get people's hands on it and show them that it's not a big difference. For sure, it's going to be a challenge to explain to people. It only weighs one chocolate bar more than some other pintech bindings.

BCM: Until now, tech bindings have been made by niche-specific, backcountry-focused brands. What does it mean for the sport that Marker, the big binding company, is making a tech binding?

MB: It shows that sport has really grown in the last years. But the other question could be what does it mean for Marker? At the beginning we didn't know if we could compete with all the specialized brands. But when I look at our whole team, I think it's all been pretty authentic. I think that the crew that is behind this is very much committed to this sport.

The Kingpin will be available in DIN 5-10 ($599) and DIN 6-13 ($649) versions. It weighs 3 lbs. 3 oz. with brakes. [Photo] Tyler Cohen

BCM: Beyond the Kingpin, what do you think backcountry bindings are going to look like over the next few years? What does the future hold?

MB: I think the sport is getting more and more nuanced. It's all skiing, but touring is one thing, and even within touring there is racing, doing big traverses, free touring. So it's getting more and more nuanced, and I think, for the whole binding and ski market, there will be products for every niche. Some products will have the potential to cover more of these niches and some will be more specialized.

For more on the Kingpin and a detailed review, stay tuned to backcountrymagazine.com. Visit

marker.net/kingpin for more technical details.

*[**Update – September 10, 2014:** According to Dynafit, the world's first TUV-certified frameless tech binding was the original TLT4, which received certification for ISO13992 in 1994. Since then, the testing procedures have evolved to include more combined loading tests, and the Marker Kingpin and Dynafit Beast 16 are now TUV certified under the updated standard, ISO 13992:2007.]*

RELATED POSTS

Tech Binding Boom: For 2015, Safety Becomes a Tech Binding Cornerstone

Dynafit Announces Beast 16 DIN ISO Certification

Return to Invernada

G3 Issues Voluntary Avalanche Probe Recall

FILED UNDER: GEAR

COMMENTS

gian says:
September 9, 2014 at 6:32 pm

How much does it really weigh? There are pretty heavy chocolates bars out there!

Reply

Tyler Cohen says:
September 10, 2014 at 8:28 am

According to Marker, 3lbs. 3oz. with brakes. —Tyler Cohen, Editor

Reply

Burnsie says:
September 12, 2014 at 10:26 pm

Actually, to be truly honest, Marker's binding weight includes everything, right down to the screws, this from a conversation with Marker-Volkl USA. Some other manufacturers give WEIGHTs of just the major binding components and omit the little bits. It all adds up...

Reply

Scott Keating says:
September 19, 2014 at 5:17 pm

Any idea about availability this winter?

Reply

Tyler Cohen says:
September 22, 2014 at 9:17 am

Marker says they'll be available in limited quantities beginning December 15. —Tyler Cohen, Editor

Reply

Rob McNeill says:
October 21, 2014 at 12:26 pm

So what about the functions, like swapping from walk to tour and back, and heelifts. No real info on those, which in my opinion have just as big an impact on the efficiency of the system as weight. Also last years new pin Binding delivered by frittschi had very serious problems with the REMOVABLE steel pins threading into an aluminum housing. What did marker do to insure their design is sufficiently robust?

Reply

Tyler Cohen says:
October 21, 2014 at 12:36 pm

Rob: As the binding isn't yet available, we haven't tested it extensively, however I spent three days touring on it and found it very user friendly. Raising and lowering the heel risers was a challenge at first, but I figured out a new method where it's easily done with the side of the pole tip, rather than the basket. Mode changes are extremely simple and can be done without removing skis (good luck putting skins on without removing skis though). To tour, you keep the toe engaged, release the heel, like on an alpine binding, then slide the mode-change back to tour. Reverse the process to lock into ski mode.

As for the pins, those of the Fritschi were designed to be adjustable (they've since changed the design for '14/15 models). This is not the case with the pins on the Kingpin. And we were told that the gold parts are forged aluminum and made by climbing-gear brand DMM. —*Tyler Cohen, Editor*

Reply

Robert Kay says:
November 17, 2014 at 12:24 pm

Okay, so they are about 10 ounces lighter than Marker's F10 bindings and obviously will be better for walking and climbing.

But what about actually skiing? Which is better? Which is safer?

Reply

Christian says:
December 9, 2014 at 5:29 pm

Just curious if the crampon slot will accommodate Dynafit crampons? Looks like the same design, but unsure about the dimensions. Anyone tested this out?

Reply

Mark says:
December 15, 2014 at 1:29 am

I am currently a tele skier eyeing transitioning to AT/Rando (we do get older) 🙂 Here is an article from Evo that has more details about the actual binding functions:
http://culture.evo.com/2014/09/marker-kingpin/
The big things to note is there are no heel pins, but wide jaws with rollers, and the heel piece slides back instead of rotating to change modes.

Reply

Jeff RUTTER says:
June 10, 2015 at 12:48 am

I have a pair of the Marker Kingpin 13 and skied them in Colorado for an entire season from 14ers to hardpack. They skied great downhill and released properly and had the feel of an alpine binding. On the uphill, I have had multiple releases while the toe was supposedly locked out. I ended up losing my ski because of this recently. I would not recommend them because of this and have not heard back from Marker regarding this problem.

Reply

Jeff RUTTER says:
June 10, 2015 at 5:07 pm

Marker has been much more responsive and it looks like they had some issues with the pins on the first round they manufactured. They are very helpful after I spoke with them and are resolving this problem. I am very excited because I really enjoyed the binding and they have been great at the resorts and in the backcountry where I routinely take the up 3000 vertical or more. Very satisfied.

Reply

TRACKBACKS

PR: Marker introduces Kingpin, an Alpine Touring 2-pin tech binding | EarnYourTurns says:
September 2, 2014 at 12:37 pm

[...] Posts Wildsnow take on the Kingpin Backcountry Mag looks at developing Kingpin [...]
Reply

Marker's Kingpin Tech Ski Binding - News - DMM Professional says:
September 16, 2014 at 8:30 am

[...] magazine has an interview with Marker's Binding Product Coordinator, Michi Buechers, on the challenges of developing [...]
Reply

SPEAK YOUR MIND

Name *

Email *

Website

POST COMMENT

Submission Guidelines
Contact
Magazine
Subscribe to *Backcountry*
Stories
Gear
Photos
Videos

60 Main Street P.O. Box 190
Jeffersonville, VT 05464
802.644.6606

Gear Review: Marker Kingpin Ski Binding

Liza Sarychev | December 9, 2015 | Gear Review (/category/gear/)

[this post is sponsored by evo.com (http://bit.ly/1NUnRwQ)]

(http://snowbrains.com/wp-content/uploads/2015/12/marker-kingpin-13-alpine-touring-ski-bindings-2016-75-1001.jpg)

2016 Marker Kingpin ski binding

Specifications:

Weight: 759 g, 768 g

DIN Range: 5 – 10, 6 – 13

Ramp Angles: 0, 7 deg, 13 deg

Break Widths: 100 mm, 125 mm

Crampon Widths: 90 mm, 105 mm, 120 mm

Pick up a pair of the Marker Kingpins at evo.com: 2016 Marker Kingpin (http://bit.ly/1NUnRwQ)

(http://snowbrains.com/wp-content/uploads/2015/12/Screen-Shot-2015-12-03-at-5.04.25-PM.png)

Heads turned as Marker unveiled the Kingpin at the 2014 trade shows. As a combination of a tech toe and alpine-like heel, the Kingpin is worthy of being called a "game changer" in the tech binding marketplace.

(http://snowbrains.com/wp-content/uploads/2015/12/DSC00817.jpg)

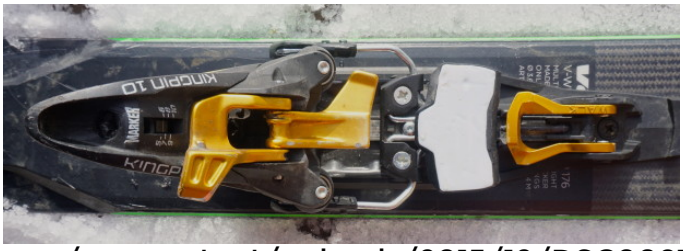
The Kingpin consists of a tech toe with a lock-out function for touring and a pinless alpine-like heel on a track with a ski/walk level. The heel has two risers, 7 deg and 13 deg as well as a flat tour option. It comes standard with 100 or 125 mm breaks and you can buy a breakless heel pad separately. The toe piece comes with a small hole in the front molding that you can thread a leash through. The heel has a large AFD plate and roller bearings for reliable release with bulky AT soles. At $649 and 730g for the burlier 13 DIN option, both the weight and price are pretty much a split down the middle between the Dynafit Beasts ($749, 795 g) and Radicals ($525, 595 g). A pretty good deal considering the Beast is the Kingpin's main competitor in performance.

Toe

(http://snowbrains.com/wp-content/uploads/2015/12/DSC00822.jpg)

The kingpin toe piece resembles other tech toes, but has an extra set of springs that Marker dubs "the six pack." These extra springs help the toe absorb more vibration, making it feel more stable in chopped up terrain and decreasing the likelihood of pre-release. Small metal tabs in front help position your boot for easy entry into the binding as well as aid your boot in a circular rotation for a cleaner release. Obvious, but worth stating, the tech toes are much more ergonomic and easier to walk on compared to the Marker Duke or Salomon Guardian since the pivot point is closer to the toe.

Heel



(http://snowbrains.com/wp-content/uploads/2015/12/DSC00811.jpg)

The Kingpin heelpiece is where Marker sets themselves apart from the rest of the tech binding market. The Kingpin is the first tech binding without heel pins, which is a huge improvement for two reasons. First, there is a vertical gap between the pins and boot fitting, meaning that you don't get direct force transfer to the tails of your skis. If you try to engage your tails, you have to go through a dead zone before the pins touch your boot. Dynafit decreased that dead zone significantly in their Beast binding, but didn't eliminate it completely. Second, the standard tech heel pins are only 2cm apart, whereas the Kingpin has a 6cm wide contact length with the back lip of the boot, increasing the torque threefold and significantly increasing power transfer to the ski. Because of the pinless system, these bindings require adapters for boots with shortened soles like the Dynafit TLT 5, 6, and a handful of others. Like in alpine bindings, the Kingpin heel has a vertical release spring that provides the binding with elasticity and 16 mm of travel, which is much more than some lower end alpine bindings and much much more than all other tech bindings.

Release-ability

The Kingpin in one of only two bindings to receive the DIN/ISO 13992 certification (Dynafit Beast being the other.) This certification means that the binding was tested to perform in a predictable manner in order reduce the likelihood of lower leg injuries (although not necessarily knee injuries) with an AT boot sole that is also ISO certified. It is worth noting that uncertified bindings could release just as dependably, but were not tested; and certified bindings could release unpredictably with an uncertified boot. It is also worth noting that the Kingpin's DIN certification is different from the DIN certification used for alpine bindings and they do not release like alpine bindings. Alpine bindings have lateral release in the toe and vertical release in the heel. Like other tech bindings, the Kingpins have both lateral and vertical release in the heel. This doesn't mean they are less safe than alpine bindings, they just work differently.

(http://snowbrains.com/wp-content/uploads/2015/12/Screen-Shot-2015-08-20-at-6.47.34-AM.png)

Performance

I skied 30 days on the Kingpins in all sorts of conditions. Groomers, powder, corn, and re-freeze. I'm used to skiing free-ride specific tech bindings and the difference was night and day. The power transmission was next level, especially to the tails of the ski. They excelled in different conditions like end of the day groomers, corn, and chopped up powder, but not as well when it came to re-freeze, I could feel every bit of chatter in my feet, and it became obvious that I was skiing a tech binding. I never felt like locking out the toes, even through all the chatter and even took a couple spills with no issues releasing. Although I didn't have any problems pre-releasing while skiing, I did come out of the locked toes in tour mode quite a bit while walking on icy terrain.

The bindings felt easy to step into with the toe guides and I haven't yet had issues with the ski/walk track icing up, which is promising. The toe lock out lever is easy to flip up with the pole handle for touring and the risers take me some fumbling to raise with pole baskets, like other tech bindings. Marker had to recall the first production round of toe pieces due to pins becoming loose; they identified it as an assembly error, which they fixed along with increasing quality control. My toe pins were of the next production round and I never had any issues with the pins or felt unsafe.

(http://snowbrains.com/wp-content/uploads/2015/12/20150905_145721.jpg)

Pick up a pair of the Marker Kingpins at evo.com: 2016 Marker Kingpin (http://bit.ly/1NUnRwQ)

Posted by Liza Sarychev (http://snowbrains.com/author/liza/) | December 9, 2015

Related Posts:

(http://snowbrains.com/september-is-the-time-to-be-at-falls-creek-australia-25cms-of-new-snow-killer-spring-pass-deals/)

September is the Time to Be at Falls Creek, Australia | 25cms of New Snow + Killer Spring Pass Deals (http://snowbrains.com/september-is-the-time-to-be-at-falls-creek-australia-25cms-of-new-snow-killer-spring-pass-deals/)

(http://snowbrains.com/video-car-gets-t-boned-by-avalanche-driving-along-stormy-mountain-road/)

VIDEO: Car Gets T-Boned by Avalanche Driving Along Stormy Mountain Road (http://snowbrains.com/video-car-gets-t-boned-by-avalanche-driving-along-stormy-mountain-road/)

(http://snowbrains.com/ski-the-biggest-lines-in-south-america-powder-south-heliski-guides/)

Ski the Biggest Lines in South America | Powder South Heliski Guides (http://snowbrains.com/ski-the-biggest-lines-in-south-america-powder-south-heliski-guides/)

(http://snowbrains.com/2-ski-resorts-are-schelduled-to-open-in-lake-tahoe-on-friday/)

2 Ski Resorts Are Schelduled To Open In Lake Tahoe On Friday (http://snowbrains.com/2-ski-resorts-are-schelduled-to-open-in-lake-tahoe-on-friday/)

(http://snowbrains.com/video-treble-cone-nz-banked-slalom-set-to-go-off-this-saturday/)

VIDEO: Treble Cone, NZ "Banked Slalom" Set To Go Off This Saturday! (http://snowbrains.com/video-treble-cone-nz-banked-slalom-set-to-go-off-this-saturday/)