UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT

KNEEBINDING, INC., Plaintiff, v. MARKER VOLKL USA, INC., Defendant.	))))))))	CIVIL ACTION NO. 2:15-cv-00121-wks

MARKER VOLKL USA, INC.'S RESPONSIVE CLAIM CONSTRUCTION BRIEF

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Cases

Statutes

Other Authorities

Defendant Marker Volkl USA, Inc. ("Marker") submits this Responsive Claim Construction Brief to address disputes with Plaintiff KneeBinding, Inc. ("KneeBinding") concerning the meaning of several terms in claim 1 of U.S. Patent No. 8,955,867 (the "'867 patent").

I. Introduction

KneeBinding's Opening Claim Construction Brief (D.I. 45) makes a number of concessions that are helpful in construing the disputed claim language. First, KneeBinding argues for the construction of terms used in the preamble of claim 1 ("vector decoupling assembly for separating and isolating two or more force vectors," "safety binding," and "securing a heel portion of a ski boot to a ski"). Having acknowledged that these terms in the preamble must be construed, KneeBinding necessarily agrees that the preamble is a limitation of the claim.

Second, KneeBinding proposes that the claim term "lateral release assembly for applying lateral securing pressure to the ski boot" be construed as "an assembly that applies pressure to resist the ski boot heel from moving laterally." D.I. 45, at 17. By omitting the words "lateral release" from its proposed construction, KneeBinding acknowledges that the phrase "lateral release assembly" does not recite sufficiently definite structure, and that the claim term is a means-plus-function term that must be construed by reference to the recited function. But the specification does not disclose any structure corresponding to the recited function—"applying lateral securing pressure to the ski boot"—and KneeBinding identifies no such structure in its brief. This renders the claim language indefinite.

KneeBinding proposes to construe the term "linkage element" as "an element that allows free-coupling between the upper heel assembly and the lower heel assembly." D.I. 45, at 17. In asserting this position, KneeBinding cites to portions of the patent specification that are entirely

inapposite. Furthermore, the term "free-coupling" is unexplained and undefined. KneeBinding has done nothing in its brief to save the claim term "linkage element" from irredeemable indefiniteness.

KneeBinding asserts that the remaining claim terms have plain meaning, but then it replaces the supposedly plain claim language with vague wording that broadens the scope of the claim. For example:

- "Force vectors" replaced with "forces";
- "Securing" replaced with "holding"; and
- "Assembly" replaced with "portion."

In sum, KneeBinding's arguments are unpersuasive, and its proposed constructions are not faithful to the claim language, the patent specification, and the prosecution history. Accordingly, Marker respectfully requests that the Court reject KneeBinding's positions and adopt Marker's claim construction positions.

II. Background

A. '867 Patent Ski Binding

KneeBinding asserts that "[t]he '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." D.I. 45, at 5 (citing '867 patent, Abstract, 3:45–52). As discussed further below, however, this statement contradicts a number of KneeBinding's proposed claim constructions, such as its proposed definition for "vector decoupling assembly for separating and isolating two or more force vectors" (where KneeBinding attempts to broaden the claim as related to "multiple forces" rather than just vertical and lateral force vectors) and "safety binding" (where KneeBinding attempts to broaden the claim to release under "certain conditions" that remain undefined). Furthermore, the '867

patent does not discuss retention of the ski boot, but rather focuses particularly on what it calls a "vector decoupling assembly," which serves to "separat[e] and isolat[e]" lateral force vectors and vertical force vectors applied to the ski binding in order to release the ski boot from the ski." D.I. 46-1, '867 patent, 11:33–12:8. This separation and isolation of different force vectors purportedly makes the ski binding safer for the skier. *See id.* at 2:49–3:6.

B. Typical Ski Bindings

Marker does not disagree that "ski bindings are designed to secure a ski boot to a ski for skiing and release the ski boot from the ski when forces on the binding are great enough." D.I. 45, at 5. However, Marker does not agree that all common ski bindings have only lateral release at the toe and only vertical release at the heel. In fact, the '867 patent acknowledges that there are heel binding units that release both laterally and vertically. *See* D.I. 46-1, '867 patent, 2:5–6. Whether or not these were desirable or undesirable at the time of the filing of the '867 patent is something that would require expert testimony, which KneeBinding does not provide.

C. The Kingpin Ski Binding

Marker disagrees with KneeBinding's characterization of Marker's Kingpin ski binding. In particular, Marker disagrees with KneeBinding's characterizations regarding the role of the post in the Kingpin ski binding. This is just one of several non-infringement issues to be addressed in this action.

D. The Person of Skill in the Art ("POSITA")

KneeBinding asserts that a POSITA for this case "has at least five years of ski binding design experience."

Marker proposes a more detailed definition of a POSITA. More specifically, Marker submits that a person having ordinary skill in the art at the time of filing of the '867 patent would be an individual with a Bachelor's degree in mechanical engineering or related technology and 3

to 5 years of experience in either the design, fabrication, or manufacture of ski bindings and related equipment, research concerning ski bindings and related equipment, or the development of standards concerning ski bindings or related equipment, in addition to ten years or more of personal experience using ski bindings.

III. Argument

A. KneeBinding Provides No Support for Its Proposed "Plain and Ordinary Meanings"

"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 Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576,1582 (Fed. Cir. 1996) ("we look to the words of the claims themselves . . . to define the scope of the patented invention"); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995 (*en banc*), *aff'd*, 517 U.S. 370 (1996). Courts must interpret claims based on "how a person of ordinary skill in the art understands a claim term" in the context of a patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). A POSITA "is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998). The "ordinary" meaning of a term is, therefore, based on a POSITA's review of the intrinsic and extrinsic evidence. The Court must consider "the same resources as would that person, viz., the patent specification and the prosecution history" and pertinent extrinsic evidence. *Phillips* 415 F.3d at 1312. Merely stating that a term should be given its "plain and ordinary meaning," without more, is not enough.

In its Opening Claim Construction Brief, KneeBinding relies almost exclusively on the purported "plain and ordinary meaning" for all of the disputed terms except "linkage element" and "fixedly attached." But while KneeBinding argues that the meaning of these terms is plain, it proposes constructions containing vague, unenlightening language such as, for example, "multiple forces," "certain conditions," and "free-coupling."

None of the language in the disputed claim terms or in KneeBinding's proposed constructions are terms of art in the ski binding industry. Yet KneeBinding provides no evidence as to what a POSITA would consider the "plain and ordinary meaning" for those terms. In fact, KneeBinding fails to cite to any piece of evidence, intrinsic or extrinsic, for 6 of the 7 terms in claim 1 of the '867 patent for which it asserts "plain and ordinary meaning" applies, including "vector decoupling assembly for separating and isolating two or more force vectors," "securing a heel portion of a ski boot to a ski," "lower heel assembly," "upper heel assembly," "fixedly attached," and "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." For the term "safety binding," KneeBinding merely provides evidence that there are international safety standards for ski bindings, but not that the industry recognizes the term "safety binding" as a term of art.

Instead, KneeBinding makes conclusory statements that the terms are "not subject to different interpretations or ambiguities" or merely that a POSITA would understand or know the definition of a given term. *See* D.I. 45, at 12, 13, 14, 16, 17, 19, 20. And yet, the parties are engaged in extensive briefing on claim construction because of the lack of information provided by the patentee in the specification or prosecution history for many of these terms. The Court should reject KneeBinding's "plain and ordinary meanings" and adopt Marker's constructions,

which are grounded in the specification and prosecution history of the '867 patent as described in Marker's Opening Claim Construction Brief (D.I. 46) and further below.

B. The Preamble of Claim 1 of the '867 Patent is Limiting

In its Infringement Contentions, served in September 2016 before the parties began the claim construction process, KneeBinding specifically alleged that Marker's accused Kingpin binding met the requirements of the preamble of claim 1. Exhibit 1, Plaintiff KneeBinding Inc.'s Infringement Contentions, at 2. Similarly, in its Opening Claim Construction Brief, KneeBinding argues the construction of three separate terms used in the preamble of claim 1 ("vector decoupling assembly for separating and isolating two or more force vectors," "safety binding" and "securing a heel portion of a ski boot to a ski"). D.I. 45, at 12–15. Having alleged that the accused device meets the requirements of the preamble and having acknowledged that these terms in the preamble must be construed, KneeBinding necessarily agrees that the preamble is a limitation of the claim.

This is entirely consistent with the law on this subject. The preamble of a claim limits the claimed invention "if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina Mtkg. Int'l., Inc. v. Coolsavings.com Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citations omitted). In this instance, the preamble certainly recites essential structure and steps, and is necessary to give life, meaning, and vitality to the claim. *See Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801 (Fed. Cir. 1990) (determining that preamble language that constitutes a structural limitation is actually part of the claimed invention). "A vector decoupling assembly for separating and isolating two or more force vectors" is the very heart of the claimed invention. KneeBinding admits as much in its Opening Claim Construction Brief, under the heading "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. 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.

D.I. 45, at 6 (citations omitted). This core idea of a vector decoupling assembly that separates and isolates lateral and vertical force vectors is emphasized throughout the patent specification, for example in the Abstract, and in the Summary of the Invention. *See, e.g.*, D.I. 46-1, '867 patent, Abstract; 3:7–23, 45–52; 4:47–56; 5:4–9; 8:11–27; 9:33–10:57. Furthermore, the preamble provides important antecedent basis for terms that are used throughout the claim, namely "a ski" and "a ski boot." *See, e.g., Pacing Techs., LLC v. Garmin Int'l, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015) ("[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention.") (quoting *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003)).

All told, there can be no question that the preamble of claim 1 is limiting.

C. KneeBinding Attempts to Re-Write and Broaden the Claims of the '867 Patent Through Claim Construction in this Litigation

Despite noting in its Opening Claim Construction Brief that the "claim terms mean what they say" (D.I. 45, at 4), KneeBinding provides proposed constructions for each of the disputed terms that greatly exceed the bounds of the specification and the claim language itself. In essence, KneeBinding is attempting to use this litigation to re-write and broaden its intellectual property rights. This is unacceptable. Instead, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Phillips*, 415 F.3d at 1316.

1. "vector decoupling assembly for separating and isolating two or more force vectors"

KneeBinding asserts that a POSITA "would understand that this claim term is reciting an assembly that separates and isolates at least two force vectors." While this statement tracks the language of the claim itself, KneeBinding proposes a definition ("a heel unit of a ski binding for separating and isolating multiple forces") that does not track the claim language and, in fact, re-writes and broadens the scope of the claim. For example, KneeBinding has changed the "vector decoupling assembly" to "a heel unit of a ski binding" and has changed "at least two force vectors" to "multiple forces." For instance, KneeBinding's proposed claim construction reads out the limitation of "force vector" completely, replacing it with simply "forces," which has a different meaning to a POSITA. Additionally, KneeBinding's proposed claim construction changes the limitation to recite multiple forces (*i.e.* several or more rather than just two).

These changes are in tension with the scope of the claim as allowed and with the teaching of the specification of the '867 patent, which support Marker's proposed claim construction. For example, the specification teaches that the ski binding includes an independent vertical heel release and an independent lateral release mechanism, showing that the invention relates primarily to two force vectors: vertical and lateral. D.I. 46-1, '867 patent, Abstract, Figs. 1–4, 3:45–47. More specifically, the vector decoupler mechanism of the '867 patent acts to "redirect the non-lateral forces without effecting the vertical heel release, lateral heel release or forward pressure compensator." *Id.* The vector decoupler mechanism is also described in the '867 patent as "separat[ing] and isolat[ing] undesired vertical release conditions from intended release conditions." *Id.*at 4:47–49. The patentee describes the invention of the '867 patent as treating the vertical release and lateral heel release as "functionally independent mechanisms." *Id.* at 3:47–50; 4:49–56; 5:4–9; *see also id.* at 8:11–27; 9:33–10:57.

KneeBinding's own statements in its Opening Claim Construction Brief support Marker's construction rather than KneeBinding's proposed definition. For example, KneeBinding states that:

> 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) . . . . 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.**

D.I. 45, at 6 (internal citations omitted) (emphasis added). Likewise, KneeBinding states that "[a]lthough 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**." (*Id.* at 11) (emphasis added). These statements align with the patent specification and Marker's construction, which emphasize the '867 patent's primary focus on the following two force vectors: vertical and lateral.

Therefore, the term "vector decoupling assembly for separating and isolating two or more force vectors" should be construed such that the vector decoupling assembly separates and isolates vertical force vectors from lateral force vectors and 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.

2. "safety binding"

KneeBinding asserts baldly, without citation to any evidence, that "'[s]afety 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." And then

it proposes that the term means "a ski binding that releases a ski boot under certain conditions." This is another blatant attempt to re-write the claim language. More specifically, KneeBinding adds the vague and ambiguous requirement that the ski binding releases "under certain conditions." The words "under certain conditions" do not appear anywhere in the '867 patent. Using KneeBinding's proposed definition of this term is nonsensical and would read on each and every ski binding on the market, which by definition must release "under certain conditions." Therefore, KneeBinding is effectively seeking to write this term out of the claim during litigation. This should not be allowed.

The only support that KneeBinding provides for why this term is definite is its assertion that "the ski media recognizes the Accused Binding as a ski binding that meets international standards for safety," and its citation to an article about the Kingpin that states that the Kingpin is "the first tech binding acknowledged by the TUV—the international certification body that validates product safety—to offer a certified DIN safety release." D.I. 45-12. It is, of course, entirely improper for KneeBinding to construe a limitation of its own patent by reference to the accused device. *See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1330 (Fed. Cir. 2006) ("claims may not be construed with reference to the accused device.") (quoting *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002); *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 118 (Fed. Cir. 1985) (*en banc*)). In any event, the article does not call the Kingpin a "safety binding" nor does it even use the term "safety binding" in any respect. The fact that the international skiing industry has certain safety standards for ski bindings is irrelevant to what the term "safety binding" means in the context of the '867 patent.

The ’867 patent itself only uses this term once, and that is in claim 1. D.I. 46-1, ’867 patent, 11:34. The only other safety-related discussion in the ’867 patent relates to prior art ski bindings as increasing incidences of knee injuries, particularly strained or ruptured anterior cruciate ligaments (“ACLs”), and suggests that the claimed invention averts such injuries. *Id.* at 2:49–3:6. The ’867 patent goes on to state that its ski binding “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.” *Id.* at 3:3–6. Therefore, to the extent the ’867 patent provides any guidance as to the term “safety binding,” it implies that such a binding prevents strain or rupture of the ACL.

A POSITA is left without any guidance in the patent specification to understand the term “safety binding” even with KneeBinding’s proposed construction. Therefore, this term is indefinite. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129–30 (2014).

3. “securing a heel portion of a ski boot to a ski”

With respect to the term “securing a heel portion of a ski boot to a ski,” KneeBinding states that “a ski binding secures the heel of a boot to a ski for skiing.” It then proposes the following definition for this term: “holding the heel portion of a ski boot in place for skiing.” Again, KneeBinding is attempting to broaden and re-write the claim. In fact, KneeBinding’s proposed construction completely eliminates the requirement that the heel portion be secured **to a ski** and adds the limitation “in place for skiing” (which is found nowhere in the claims of the ’867 patent or in the specification). It also changes the verb of this term from “securing” (meaning to fix or attach something **firmly** so that it **cannot be moved** (Exhibit 2, “Secure,” Oxford Dictionaries, *available at* https://en.oxforddictionaries.com/definition/secure (last visited Jan. 20, 2017)) to “holding” (meaning to **keep** in a specific position (Exhibit 3, “Hold,” Oxford Dictionaries, *available at* https://en.oxforddictionaries.com/definition/hold (last visited Jan. 20,

2017)). The verb "holding" is much broader than "securing," and would expand the claim scope beyond the bounds of what is taught or disclosed in the specification of the '867 patent.

As discussed above, KneeBinding admits that the Court should presume that the "claim terms mean what they say." D.I. 45, at 4. In contrast to KneeBinding's proposed definition, Marker's proposed claim construction is in alignment with the scope and meaning of the claim term and the Court should adopt the following construction for "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." *See Phillips*, 415 F.3d at 1314.

4. "lower heel assembly" and "upper heel assembly"

For the terms "lower heel assembly" and "upper heel assembly," KneeBinding proposes the following definitions, respectively: "a lower portion of a heel unit of a ski binding" and "an upper portion of a heel unit of a ski binding." However, both of these proposed definitions eliminate the word "assembly" and just say "portion." An assembly is considered a unit consisting of components that have been fitted together. *See* Exhibit 4, "Assembly," Oxford Dictionaries, *available at* https://en.oxforddictionaries.com/definition/assembly (last visited Jan. 20, 2017). A portion, on the other hand, is a part of a whole. *See* Exhibit 5, "Portion," Oxford Dictionaries, *available at* https://en.oxforddictionaries.com/definition/portion (last visited Jan. 20, 2017). These are two very different concepts, especially in patent law. Therefore, KneeBinding's proposed definition is merely another attempt to re-write the claims during litigation.

By comparison, Marker's proposed constructions for "lower heel assembly" and "upper heel assembly" make clear that they are separate components of the ski binding, as taught in the '867 patent. For example, the figures and descriptions thereof in the '867 patent identify the upper and lower heel housings separately, with different numbers (numbers 16 and 27

respectively). *See*, *e.g.*, D.I. 46-1, '867 patent, Figs. 1–4; 5:52–55. The patentees also discussed each of the upper heel housing and lower heel housing in separate sections of the specification, showing that they considered them distinct components of the alleged invention. *See id.*at 4:57–63, 5:59–64, 6:4–29, 6:62–7:17. Therefore, Marker respectfully asks the Court to construe "lower heel assembly" to mean "the lower heel assembly is attached to the ski, and does not have any components or parts in common with, the upper heel assembly" and "upper heel assembly" to mean "the upper heel assembly is coupled to, but does not have any components or parts in common with, the lower heel assembly."

5. "having a lateral release assembly for applying lateral securing pressure to the ski boot"

Marker agrees that under the language of the claims, the lateral release assembly is located in the upper heel assembly. *See* D.I. 45, at 16. This is consistent with the patentee's statements to the Patent Office during prosecution of KneeBinding's predecessor patent, U.S. Patent No. 7,318,598 ("the '598 patent"). *See* Exhibit 6, Prosecution History of the '598 patent, Amendment in Response to Non-Final Office Action, dated 1/4/2007, at 8 (stating that "Claim 19 requires that the lateral release assembly be part of the upper heel assembly.").[1] Thereafter, however, the parties' positions diverge with respect to this claim term.

First, KneeBinding asserts that "[c]ommon 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." D.I. 45, at 17. It appears from this assertion that KneeBinding is trying to read the claim onto any ski binding that releases laterally. This cannot be.

[1] KneeBinding has acknowledged that the prosecution history of this earlier patent is relevant to the understanding of the '867 patent. *See* D.I. 45, at 7.

Second, KneeBinding proposes the following construction of this term: "an assembly that applies pressure to resist the ski boot heel from moving laterally." KneeBinding omits the words "lateral release" from its proposed construction, and thereby effectively acknowledges that the phrase "lateral release assembly" does not recite sufficiently definite structure and that the claim term must be construed by reference to the recited function, *i.e.* "applying lateral securing pressure to the ski boot."

But KneeBinding does not demonstrate how any structure described in the '867 patent's specification is linked with any reasonable certainty to this claimed function. KneeBinding is wrong in its assertion that "[c]laim 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." D.I. 45, at 16. In actuality, the term "lateral release assembly" does not appear anywhere in the specification of the '867 patent other than in the claims. The portions of the specification cited by KneeBinding as support for its argument relate, instead, to lateral release cams. *See* D.I. 46-1, '867 patent, 3:53–54. There is no mention in the specification about these cams securing or retaining a ski boot. Quite the contrary. The specification of the '867 patent teaches that the lateral release cams merely control release when the heel of the boot displaces from the longitudinal center of the ski, restricting the release movement to predetermined paths of rotation and translation. *Id.* at 3:54–67. Therefore, even if the lateral release cams were, in fact, part of the lateral release assembly, they do not fulfill the function of the claim term, namely "applying lateral securing pressure to the ski boot."

In sum, KneeBinding has effectively admitted that the claim term "lateral release assembly for applying lateral securing pressure to the ski boot" must be construed by reference to the recited function and, hence, is a means-plus-function term. *See* 35 U.S.C. § 112, ¶ 6.

Having identified this function, the task then becomes to determine what structure, if any, is disclosed in the specification corresponding to the function. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015) (*en banc*). In this instance, however, no such structure exists, and consequently this claim term is indefinite. *Id.* at 1350–54.

6. "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.'" D.I. 45, at 17. With this proposed construction, KneeBinding yet again attempts to re-write the claim. This time it inserts the phrase "free-coupling," which is not defined or explained in either its brief or the patent specification.

Rather, KneeBinding attempts to bootstrap references in the specification to "coupling" to provide support for and disclosure of the "linkage element." Specifically, KneeBinding paraphrases that "[t]he 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." D.I. 45 at 18 (citing '867 patent, 8:25–37). However, what this passage actually says is:

> 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 27a 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 60a and 61. Component 61 can be affixed to the lower heel housing 27 by band 18 that wraps around the lower heel housing 27.

D.I. 46-1, '867 patent, 8:25–37. According to the parts of this passage that were truncated by KneeBinding, the free coupling discussed in this passage relates to "moving lateral release cam 17 against the mating cam surfaces 27a in the presence of lateral heel release loads." *Id.* at 27–30. This does not relate the upper heel housing to the lower heel housing.

KneeBinding also characterizes the specification as stating "that the lateral release cam of the upper heel housing assembly has an 'open linkage' to the lower heel assembly." D.I. 45, at 18 (citing '867 patent, 8:50–54). The passage cited by KneeBinding states:

> 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 60a and cantilevered plate 57.

D.I. 46-1, '867 patent, 8:50–54. The open linkage described in this passage is actually between the tongue and the cantilevered plate. According to Fig. 2 of the '867 patent, the tongue is part of the decoupler mechanism and the cantilevered plate is not in either the upper or lower heel housing. *Id.* at Fig. 2. Moreover, this passage notes that the open linkage works to decouple the longitudinal pressure load generated by the moving cam and the lower heel housing. *Id.* at 8:50–54.

Therefore, neither of the passages relied upon by KneeBinding actually stand for the proposition that "the patent specification discusses free coupling of the lateral release assembly of the upper heel assembly to the lower heel assembly" as KneeBinding asserts. D.I. 45, at 18. These passages referred to by KneeBinding are not sufficient to show that the term "linkage element" is definite. In fact, the opposite is true.

7. "fixedly attached"

With respect to the term "fixedly attached," the parties' proposed constructions are not far apart, as shown below:

KneeBinding's Proposed Construction	Marker's Proposed Construction
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.

Because the proposed construction are substantively similar, Marker has reached out to KneeBinding to propose a compromise construction. However, KneeBinding has not accepted Marker's proposal. Marker is hopeful, however, that a compromise can be reached to eliminate this dispute.

8. "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"

KneeBinding proposes the following definition for this term: "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.I. 45, at 20. Again, KneeBinding's proposed definition broadens the scope of the claim language by changing the claim from referring to "the linkage element, a first surface, and a second surface" to "the linkage element and **at least two surfaces**" (emphasis added) as limiting the movement of the lateral release assembly. It is unclear now whether the linkage element and only a first undefined surface and a second undefined surface act to limit the motion or if the linkage element works in conjunction with a ***multitude*** of undefined surfaces to achieve this result.

As explained in Marker's opening claim construction brief (D.I. 46, at 23–24), during prosecution history of the '867 patent, KneeBinding argued to the Patent Office that the combination of **only three elements** ("a linkage element, a first surface and a second surface") was a key distinction of the '867 patent over the prior art. D.I. 46-6, *December 20, 2011*

Amendment in Response to Non-Final Office Action Under 37 C.F.R. 1.111, at 5–7; *January 9, 2013 Request for Continued Examination Pursuant to 37 C.F.R. 1.114 and Amendment*, at 5–6; *October 8, 2013 Response After Final Action Under 37 C.F.R. 1.116*, at 6. The same was true during the prosecution for the related '598 patent, where the patentee stated that the prior art "failed to teach **a first surface and a second surface** fixed [*sic*] attached to a heel assembly that allow motion of a lateral release assembly to occur only in the longitudinal and horizontal plane . . . because [the prior art] also allows release in the vertical plane." Exhibit 6, *Interview Summary* (emphasis added).

KneeBinding, on the other hand, provides no support for its proposed broadening language. And its only substantive argument relating to this term is more confusing and provides more ambiguity than clarity on what the true scope of this limitation is: "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 [sic] the horizontal force vectors." (*id.* at 19) (emphasis added).

Therefore, based on the intrinsic evidence, it is apparent that the limitation of the motion of the lateral release assembly to within a predetermined region within a plane defined by the longitudinal and horizontal axes of the ski is accomplished by ***only*** the "linkage element," a "first surface," and a "second surface." Consequently, Marker's proposed construction of "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" that "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'" should be adopted.

IV. Conclusion

For all the foregoing reasons and for the reasons stated in its Opening Claim Construction Brief, Marker respectfully requests that the Court adopt its proposed constructions and reject KneeBinding's proposed constructions.

Dated: January 20, 2017

Respectfully submitted,

/s/ Anthony J. Fitzpatrick

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CERTIFICATE OF SERVICE

I hereby certify that on January 20, 2017, a true and correct copy of the foregoing document was electronically filed with the United States District Court for the District of Vermont and was served on all counsel by the court's electronic filing notification or via email.

/s/ Anthony J. Fitzpatrick
Anthony J. Fitzpatrick

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EXHIBIT 1

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:

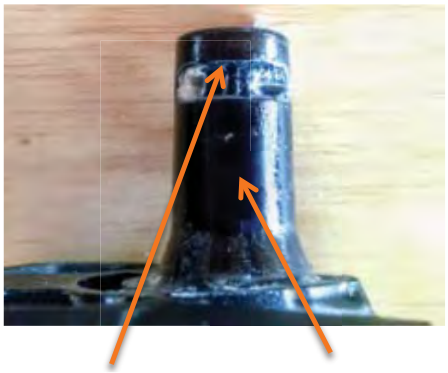
KneeBinding asserts that the Kingpin ski binding sold by Defendant Marker Volkl USA, Inc. ("Marker") infringes Claims 1, 4, 5, 6, and 7 and Claim 8 or 9 of U.S. Patent No. 8,955,867 (the "'867 Patent"). Determination of infringement of Claim 8 or 9 requires discovery beyond information publically available 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.

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Dated: September 16, 2016

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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.

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EXHIBIT 2

WORD OF THE DAY
ineluctable
ADJECTIVE

Definition of *secure* in English:

secure

ADJECTIVE

1 Fixed or fastened so as not to give way, become loose, or be lost:
'check to ensure that all nuts and bolts are secure'

More example sentences Synonyms

1.1 (of a place of detention) having provisions against the escape of inmates:
'a secure unit for young offenders'

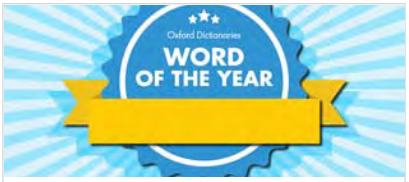
More example sentences

2 Certain to remain safe and unthreatened:
'his position as party leader was less than secure'

'a more competitive economy will lead to an increase in secure employment'

More example sentences Synonyms

2.1 Protected against attack or other criminal activity:



The Oxford Dictionaries Word of the Year 2016 is...


20 words from the 1920s


Quiz: ghost or cat?

'no airport is totally secure'

More example sentences

2.2 Feeling confident and free from fear or anxiety:
'everyone needs to have a home and to feel secure and wanted'

More example sentences Synonyms

2.3 (**secure of**) *dated* Feeling no doubts about attaining:
'she remained poised and complacent, secure of admiration'

VERB

[WITH OBJECT]

1 Fix or attach (something) firmly so that it cannot be moved or lost:
'pins secure the handle to the main body'

More example sentences Synonyms

1.1 Make (a door or container) hard to open; fasten or lock:
'doors are likely to be well secured at night'

More example sentences Synonyms

1.2 *Surgery* Compress (a blood vessel) to prevent bleeding.

2 Succeed in obtaining (something), especially with difficulty:
'the division secured a major contract'

More example sentences Synonyms

2.1 Seek to guarantee repayment of (a loan) by having a right to take possession of an asset in the event of non-payment:
'a loan secured on your home'

More example sentences

3 Protect against threats; make safe:

'the government is concerned to secure the economy against too much foreign ownership'

More example sentences | Synonyms

Phrases

secure arms

Hold a rifle with the muzzle downward and the lock in the armpit to guard it from rain.

Origin

Mid 16th century (in the sense 'feeling no apprehension'): from Latin securus, from se- without + cura care.

Pronunciation

secure /sɪˈkjʊə/ /sɪˈkjɔː/

Further reading

5 tasty sandwich etymologies

Which Joe gave his name to 'sloppy joes'? We look at five interesting sandwiches and their lexical origins.

READ MORE

6 punctuation marks you might be using incorrectly

We take a look at several popular, though confusing, punctuation marks.

READ MORE

An A-Z of country name origins

From Afghanistan to Zimbabwe, discover surprising and intriguing language facts from around the globe.

READ MORE

How brothers became buddies and bros

The definitions of 'buddy' and 'bro' in the OED have recently been revised. We explore their history and increase in popularity.

READ MORE

What is the origin of 'steal someone's thunder'?

Susie Dent explores the surprisingly literal story behind the phrase 'to steal someone's thunder'.

READ MORE

EXHIBIT 3

Main definitions of ***hold*** in English: hold[1] hold[2]

hold[1]

VERB

1 *[with object]* Grasp, carry, or support with one's arms or hands:
'she was holding a brown leather suitcase'
[no object] *'he held on to the back of a chair'*
More example sentences Synonyms

1.1 *[with object and adverbial]* Keep or sustain in a specified position:
'I held the door open for him'
More example sentences

1.2 Embrace (someone):
'Mark pulled her into his arms and held her close'
More example sentences Synonyms

1.3 Be able to bear (the weight of a person or thing):
'I reached up to the nearest branch which seemed likely to hold my weight'
More example sentences Synonyms

1.4 (of a vehicle) maintain close contact with (the road), especially when driven at speed:
'the car holds the corners very well'

More example sentences

1.5 (of a ship or an aircraft) continue to follow (a particular course):
'the ship is holding a south-easterly course'

More example sentences

1.6 *archaic [no object, with adverbial of direction]* Keep going in a particular direction:
'he held on his way, close behind his friend'

2 *[with object]* Keep or detain (someone):
'the police were holding him on a murder charge'

[with object and complement] *'she was held prisoner for two days'*

More example sentences | Synonyms

2.1 Keep possession of (something), typically in the face of a challenge or attack:
'the rebels held the town for many weeks'

[no object] *'White managed to hold on to his lead'*

More example sentences

2.2 Keep (someone's interest or attention).

Example sentences | Synonyms

2.3 (of a singer or musician) sustain (a note).

Example sentences

2.4 Stay or cause to stay at a certain value or level:

[no object] *'MCI shares held at 77p'*

[with object] *'they are trying to hold public spending to £244.5 billion'*

More example sentences

11 words you perhaps didn't know were portmanteaus

'Coarse' or 'Course'?

Which of the following is correct?

○ He tried to keep the boat on coarse

○ He tried to keep the boat on course

NEXT 0/10

TRENDING WORDS

Most popular in the world

1. BF
2. translation
3. Hindi
4. bae
5. India

2.5 (in sport) manage to achieve a draw against (opponents thought likely to win):
'AC Milan were held to a 1–1 draw by Udinese'

More example sentences

3 *[no object]* Remain secure, intact, or in position without breaking or giving way:
'the boat's anchor would not hold'

More example sentences

3.1 (of a favourable condition or situation) continue without changing:
'let's hope her luck holds'

More example sentences Synonyms

3.2 Be or remain valid or available:
'I'll have that coffee now, if the offer still holds'

More example sentences Synonyms

3.3 (of an argument or theory) be logical, consistent, or convincing:
'their views still seem to hold up extremely well'

More example sentences Synonyms

3.4 (**hold to**) Refuse to abandon or change (a principle or opinion):
'those who held to the view that Britain should not be part of the Common Market'

More example sentences

3.5 (**hold someone to**) *[with object]* Cause someone to adhere to (a commitment):
'the role of the media ought to be to hold politicians to their promises'

More example sentences

4 *[with object]* Contain or be capable of containing (a specified amount):
'the tank held twenty-four gallons'

More example sentences Synonyms

4.1 Be able to drink (a reasonable amount of alcohol) without becoming drunk or suffering any ill effects:
'I can hold my drink as well as anyone'

More example sentences

4.2 Have or be characterized by:
'I don't know what the future holds'

More example sentences

5 *[with object]* Have in one's possession:
'the managing director still holds fifty shares in the company'

More example sentences Synonyms

5.1 *North American informal [no object]* Be in possession of illegal drugs:
'he was holding, and the police hauled him off to jail'

5.2 Have or occupy (a job or position):
'she held office from 1985 to 90'

More example sentences Synonyms

5.3 *[with object]* Have (a belief or opinion):
'I feel nothing but pity for someone who holds such chauvinistic views'

[with clause] *'they hold that all literature is empty of meaning'*

More example sentences Synonyms

5.4 *[with object and complement]* Consider (someone) to be responsible or liable for a particular situation:
'you can't hold yourself responsible for what happened'

More example sentences

5.5 (**hold someone/thing in**) Regard someone or something with (a specified feeling):
'the speed limit is held in contempt by many drivers'

More example sentences

5.6 *[with clause]* (of a judge or court) rule; decide:
'the Court of Appeal held that there was no evidence to support the judge's assessment'

More example sentences

6 *[with object]* Keep or reserve for someone:
'a booking can be held for twenty-four hours'

More example sentences Synonyms

6.1 Maintain (a telephone connection) until the person one has telephoned is free to speak:
'please hold the line, and I'll see if he's available'

[no object] *'will you hold?'*

More example sentences

7 *[with object]* Prevent from going ahead or occurring:
'hold your fire!'

More example sentences

7.1 *North American informal* Refrain from adding or using (something, typically an item of food or drink):
'a strawberry margarita, but hold the tequila'

More example sentences

7.2 (**hold it**) *informal* Wait or stop doing something:
'hold it right there, mate!'

More example sentences

7.3 *archaic [no object]* Restrain oneself:
''Hold, hold!' he cried'

8 *[with object]* Arrange and take part in (a meeting or conversation):
'a meeting was held at the church'

More example sentences Synonyms

NOUN

1 An act or manner of grasping something; a grip:
'he caught hold of her arm'
'he lost his hold and fell'
More example sentences | Synonyms

1.1 A particular way of grasping or restraining someone, especially an opponent in wrestling or judo.
Example sentences

1.2 A place where one can grip with one's hands or feet while climbing:
'he felt carefully with his feet for a hold and swung himself up'
More example sentences

2 *[in singular]* Power or control:
'Tom had some kind of hold over his father'
More example sentences | Synonyms

3 *archaic* A fortress.

Phrases

be left holding the baby (or north americanbag)

informal Be left with an unwelcome responsibility, typically without warning.
Example sentences

get hold of

1 Grasp physically.
Example sentences

1.1 Grasp (something) intellectually; understand.
Example sentences

1.2 *informal* Obtain:

'if you can't get hold of ripe tomatoes, add some tomato puree'

More example sentences Synonyms

1.3 *informal* Find or manage to contact (someone):
'I'll try and get hold of Mark'

More example sentences Synonyms

hold someone/thing at bay

see **bay**

hold the ball

Commit the offence of persisting to hold on to the ball after being legitimately tackled:

'they were caught holding the ball on several occasions'

More example sentences

hold one's breath

see **breath**

1 Cease breathing temporarily:

'he held his breath under the water'

More example sentences

1.1 Be in a state of suspense or anticipation:
'France held its breath while the Senate chose its new president'

More example sentences

hold someone/thing cheap

archaic Have a low opinion of someone or something:

'I began to dislike Linton, and to excuse his father for holding him cheap'

More example sentences

hold court

Be the centre of attention amidst a crowd of one's admirers:

'Lewis was holding court in the small dressing room'

More example sentences

hold someone/thing dear

Care for or value someone or something greatly:

'fidelity is something most of us hold dear'

More example sentences Synonyms

hold fast

1 Remain tightly secured:

'the door held fast, obviously locked'

More example sentences

1.1 Continue to believe in or adhere to an idea or principle:
'it is important that we hold fast to the policies'

More example sentences

hold the field

Remain the most important:

'the principles of quantum theory hold the field as the convincing account of the physics of the microworld'

More example sentences

see **field**

hold the fort

Take responsibility for a situation while another person is temporarily absent.

Example sentences Synonyms

hold good (or true)

Remain true or valid:

'his views still hold true today'

More example sentences

hold one's ground

see **ground**

hold someone's hand

Give a person comfort, guidance, or moral support in a difficult situation.

Example sentences

hold hands

(of two or more people) clasp each other by the hand, typically as a sign of affection.

Example sentences

hold hard

*[as imperative]*Stop or wait.

Example sentences

hold someone/thing harmless

Indemnify someone or something.

Example sentences

hold one's horses

*informal [usually as imperative]*Wait a moment.

Example sentences

hold the line

Not yield to the pressure of a difficult situation:

'France's central bank would hold the line'

More example sentences

hold the man

Commit the offence of holding on to an opposing player who is not in possession of the ball:

'he would pay a free kick for holding the man'

More example sentences

hold one's nose

Squeeze one's nostrils with one's fingers in order to avoid inhaling an unpleasant smell.

Example sentences

hold one's own

see **own**

Retain a position of strength in a challenging situation:

'Britain has begun to hold its own in world markets'

More example sentences Synonyms

hold one's peace

Remain silent about something:

'he nodded indulgently at such pertness and obstinacy, but held his peace'

More example sentences

see **peace**

hold (one's) serve (or service)

(in tennis and other racket sports) win a game in which one is serving.

Example sentences

hold the stage

Dominate a scene of action or forum of debate:

'the notion of treatment by opposites has held the stage for too long'

More example sentences

see **stage**

hold sway

see **sway**

Have great power or influence over a particular person, place, or domain:

'they had held sway in France for a quarter of a century'

'such arguments would not hold sway in a university'

More example sentences Synonyms

hold thumbs

Fold one's fingers over one's thumb to bring good luck.

Example sentences

hold someone to bail

Bind someone by bail.

Example sentences

hold one's tongue

*informal [often in imperative]*Remain silent.

Example sentences

hold someone/thing to ransom

see **ransom**

hold one's head up (or hold one's head high)

see **head**

hold water

[often with negative](of a statement, theory, or line of reasoning) appear to be valid, sound, or reasonable:

'this argument just does not hold water'

More example sentences Synonyms

no holds barred

1 (in wrestling) with no restrictions on the kinds of holds that are used.

Example sentences

1.1 Used to convey that no rules or restrictions apply in a conflict or dispute:
'no-holds-barred military action'

More example sentences

on hold

1 Waiting to be connected while making a telephone call:

''I'll just see if he's free,' Rachel said, and put me on hold'

More example sentences

1.1 Temporarily not being dealt with or pursued:
'he has had to put his career on hold'

More example sentences Synonyms

take hold

Start to have an effect:

'the reforms of the late nineteenth century had taken hold'

More example sentences

there is no holding someone

Used to convey that someone is particularly determined or cannot be prevented from doing something:

'once Eva had found her vocation there was no holding her'

More example sentences

Phrasal Verbs
hold something against someone

Allow past actions or circumstances to have a negative influence on one's present attitude towards someone:

'if he failed her, she would hold it against him forever'

More example sentences

hold back

Hesitate to act or speak:

'he held back, remembering the mistake he had made before'

More example sentences Synonyms

hold someone/thing back

1 Prevent or restrict the progress or development of someone or something:

'my lack of experience held me back a bit'

More example sentences Synonyms

1.1 Refuse or be unwilling to make something known:
'you're not holding anything back from me, are you?'

More example sentences Synonyms

hold someone down

Keep someone under strict control or severely restrict their freedom:

'the people are held down by a repressive military regime'

More example sentences

hold something down

Succeed in keeping a job or position for a period of time:

'holding down two jobs was proving tiring for him'

More example sentences Synonyms

hold forth

Talk lengthily, assertively, or tediously about a subject:

'he was holding forth on the merits of the band's debut LP'

More example sentences Synonyms

hold something in

Suppress an expression of emotion:

'she tried to stop laughing, but it was too much to hold in'

hold someone/thing off

Resist an attacker or challenge:

'he held off a late challenge by Vose to win by thirteen seconds'

More example sentences Synonyms

hold off

1 (of bad weather) fail to occur:

'fortunately, the rain held off until the evening'

More example sentences

1.1 Delay or postpone an action or decision:
'if I was in their shoes, I'd hold off for a couple of days'

More example sentences Synonyms

hold on

1 *[often in imperative]*Wait; stop:

'hold on a minute, I'll be right back!'

More example sentences Synonyms

2 Endure in difficult circumstances:

'if only they could hold on a little longer'

More example sentences Synonyms

hold on to

Keep:

'the industry is trying to hold on to experienced staff'

More example sentences Synonyms

hold out

1 Resist or survive in difficult circumstances:

'British troops held out against constant attacks'

More example sentences | Synonyms

1.1 Continue to be sufficient:
'we can stay here for as long as our supplies hold out'

More example sentences | Synonyms

hold out for

Continue to demand (a particular thing), refusing to accept what has been offered:

'he is holding out for a guaranteed 7 per cent rise'

More example sentences

hold out on

Refuse to give something, typically information, to (someone).

Example sentences

hold something out

Offer a chance or hope:

'a new drug may hold out hope for patients with lung cancer'

More example sentences

hold something over

1 Postpone something:

'the usual family gathering was held over until late January'

More example sentences | Synonyms

2 Use a piece of information to threaten or intimidate (someone).

Example sentences

hold together (or hold something together)

Remain or cause to remain united:

'if your party holds together, you will probably win'

More example sentences

hold up

Remain strong or vigorous:

'the Labour vote held up well'

More example sentences

hold someone/thing up

1 Support and prevent something from falling:

'concrete pillars hold up the elevated section of the railway'

More example sentences Synonyms

2 Display something by holding it above one's waist or head:

'he held up the book so she could see the cover'

More example sentences Synonyms

2.1 Present or expose someone or something as an example or for particular treatment:
'they were held up to public ridicule'

More example sentences

3 Delay or block the movement or progress of someone or something:

'our return flight was held up for seven hours'

More example sentences Synonyms

4 Rob someone or something using threats or violence:

'a masked raider held up the post office'

More example sentences Synonyms

5 *Bridge*
Refrain from playing a winning card for tactical reasons.

hold with

*[with negative]*Approve of:

'I don't hold with fighting or violence'

More example sentences | Synonyms

Origin
Old English haldan, healdan, of Germanic origin; related to Dutch houden and German halten; the noun is partly from Old Norse hald hold, support, custody.

Pronunciation
hold /həʊld/

Main definitions of ***hold*** in English: hold[1] hold[2]

hold[2]

NOUN

A large compartment or space in the lower part of a ship or aircraft in which cargo is stowed.

Example sentences

Origin
Late 16th century: from obsolete holl, from Old English hol (see hole). The addition of -d was due to association with hold.

Pronunciation
hold /həʊld/

Further reading

5 tasty sandwich etymologies

Which Joe gave his name to 'sloppy joes'? We look at five interesting sandwiches and their lexical origins.

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6 punctuation marks you might be using incorrectly

We take a look at several popular, though confusing, punctuation marks.

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How brothers became buddies and bros

The definitions of 'buddy' and 'bro' in the OED have recently been revised. We explore their history and increase in popularity.

READ MORE

What is the origin of 'steal someone's thunder'?

Susie Dent explores the surprisingly literal story behind the phrase 'to steal someone's thunder'.

READ MORE

EXHIBIT 4

Definition of *assembly* in English:

assembly

NOUN

1 A group of people gathered together in one place for a common purpose:
'an assembly of dockers and labourers'

More example sentences Synonyms

1.1 A group of people elected to make laws or decisions for a particular country or region:
'the 577-seat National Assembly'
'the UN General Assembly'

More example sentences

2 *[mass noun]* The action of gathering together as a group for a common purpose:
'a decree guaranteeing freedom of assembly'

More example sentences

2.1 The regular gathering of the teachers and pupils of a school at the start or end of the day:
'he was told off for talking in assembly'

More example sentences

2.2 (usually **the assembly**) *historical* A signal for troops to assemble, given by drum or bugle.

Example sentences

3 *[mass noun], [often as modifier]* The action of fitting together the component parts of a machine or other object:

'a car assembly plant'

More example sentences Synonyms

3.1 *[count noun]* A unit consisting of components that have been fitted together:

'the tail assembly of the aircraft'

More example sentences

4 *Computing*

[mass noun], [usually as modifier] The conversion of instructions in low-level code to machine code.

Example sentences

Origin

Middle English: from Old French asemblee, feminine past participle of asembler (see assemble).

Pronunciation

assembly /əˈsɛmbli/

11 words you perhaps didn't know were portmanteaus

'Bring' or 'Take'?

Which of the following is correct?

○ Will you take me back some scent from Paris?

○ Will you bring me back some scent from Paris?

NEXT 0/10

TRENDING WORDS

Most popular in the world

1. BF
2. translation
3. Hindi
4. bae
5. India

Further reading

5 tasty sandwich etymologies

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READ MORE

EXHIBIT 5

Definition of *portion* in English:

portion

NOUN

1 A part of a whole:
'a portion of the jetty still stands'
'he could repeat large portions of Shakespeare'
More example sentences Synonyms

1.1 A part of something divided between people; a share:
'she wanted the right to decide how her portion of the allowance should be spent'
More example sentences Synonyms

1.2 An amount of food suitable for or served to one person:
'a portion of ice cream'
'burger joints offering huge portions'
More example sentences Synonyms

1.3 *Law* The part or share of an estate given or descending by law to an heir.
Example sentences

1.4 *archaic* A dowry given to a bride at her marriage:

'he'll marry her fast enough when he knows the sum of her portion'

More example sentences

2 *archaic* A person's destiny or lot:
'what will be my portion?'

Synonyms

VERB

[WITH OBJECT]

1 Divide (something) into parts and share out:
'for centuries meadowland with common hay rights was portioned out'

More example sentences Synonyms

1.1 (usually as **adjective" , with "submodifier portioned**) Serve (food) in an amount suitable for one person:
'generously portioned lunches'

More example sentences

1.2 *archaic* Give a dowry to (a bride):
'my parents will portion me most handsomely'

Origin
Middle English: from Old French porcion, from Latin portio(n-), from the phrase pro portione in proportion.

Pronunciation
portion /ˈpɔːʃ(ə)n/

11 words you perhaps didn't know were portmanteaus

Types of Dance

Which of the following is a type of dance?

○ turkey trot

○ chicken trot

NEXT 0/10

TRENDING WORDS

Most popular in the world

1. BF
2. translation
3. Hindi
4. bae
5. India

Further reading

5 tasty sandwich etymologies

Which Joe gave his name to 'sloppy joes'? We look at five interesting sandwiches and their lexical origins.

READ MORE

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READ MORE

What is the origin of 'steal someone's thunder'?

Susie Dent explores the surprisingly literal story behind the phrase 'to steal someone's thunder'.

READ MORE

EXHIBIT 6

PTO/SB/05 (01-04)
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U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	289630.120 US1
First Inventor	Howell, Richard J.
Title	Alpine Ski Binding Heel Unit
Express Mail Label No.	EV 207558868 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. ☑ Applicant claims small entity status. See 37 CFR 1.27.
3. ☑ Specification [*Total Pages* 25] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. ☑ Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 4]
5. Oath or Declaration [*Total Sheets* 3]
   a. ☑ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 18 completed)*
      i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☑ Application Data Sheet. See 37 CFR 1.76 (2 pages)

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

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☑ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☐ Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

For CONTINUATION OR DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☑ Customer Number: 23483 *OR* ☐ Correspondence address below

Name					
Address					
City		*State*		*Zip Code*	
Country		*Telephone*		*Fax*	

Name (Print/Type)	Ronald R. Demsher	*Registration No. (Attorney/Agent)*	42,478
Signature		*Date*	02/17/2004

This collection of information is required by 37 CFR 1.53(b). 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Date of Mailing: 02/17/2004

021704 16152 U.S. PTO

PTO/SB/17 (10-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 385.00

Complete if Known	
Application Number	TBD
Filing Date	02/17/2004
First Named Inventor	Howell, Richard J.
Examiner Name	TBD
Art Unit	TBD
Attorney Docket No.	289630.120 US1

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 08-0219

Deposit Account Name: Hale and Dorr LLP

The Director is authorized to: *(check all that apply)*

☑ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee**

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	385.00
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 385.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims	20	-20** =		X		=	
Independent Claims	3	- 3** =		X		=	
Multiple Dependent					0	=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) ____________

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY

(Complete *(if applicable)*)

Name (Print/Type)	Ronald R. Demsher	*Registration No. (Attorney/Agent)*	42,478	*Telephone*	(617) 526-6105
Signature	[signature]			*Date*	02/17/2004

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	289630.120 US1
First Inventor	Howell, Richard J.
Title	Alpine Ski Binding Heel Unit
Express Mail Label No.	EV 207558868 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ Fee Transmittal Form (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ Applicant claims small entity status. See 37 CFR 1.27.
3. ☑ Specification [*Total Pages* 25]
   (preferred arrangement set forth below)
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   - Cross Reference to Related Applications
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   - Reference to sequence listing, a table, or a computer program listing appendix
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   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. ☑ Drawing(s) (*35 U.S.C. 113*) [*Total Sheets* 4]
5. Oath or Declaration [*Total Sheets* 3]
   a. ☑ Newly executed (original or copy)
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      i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
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7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☑ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☐ Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: .....

Prior application information: *Examiner* _____ *Art Unit:* _____

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19. CORRESPONDENCE ADDRESS

☑ Customer Number: 23483 *OR* ☐ Correspondence address below

Name					
Address					
City		*State*		*Zip Code*	
Country		*Telephone*		*Fax*	

Name (Print/Type)	Ronald R. Demsher	*Registration No. (Attorney/Agent)*	42,478
Signature		*Date*	02/17/2004

This collection of information is required by 37 CFR 1.53(b). 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 385.00

Complete if Known	
Application Number	TBD
Filing Date	02/17/2004
First Named Inventor	Howell, Richard J.
Examiner Name	TBD
Art Unit	TBD
Attorney Docket No.	289630.120 US1

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 08-0219

Deposit Account Name: Hale and Dorr LLP

The Director is authorized to: *(check all that apply)*

☑ Charge fee(s) indicated below ☑ Credit any overpayments

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☐ Charge fee(s) indicated below, **except for the filing fee**

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	385.00
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 385.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims	20	-20** =		x		=	
Independent Claims	3	- 3** =		x		=	
Multiple Dependent					0	=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
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SUBTOTAL (2) ($) 0.00

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) ____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY

(Complete *(if applicable)*)

Name (Print/Type)	Ronald R. Demsher	*Registration No. (Attorney/Agent)*	42,478	*Telephone*	(617) 526-6105
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Date of Deposit: February 17, 2004
Atty. Docket No. 289630.120 US1

ALPINE SKI BINDING HEEL UNIT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Appl. Serial No. 60/448,645, filed on February 18, 2003, entitled ALPINE SKI BINDING HEEL UNIT, under 35 U.S.C. §119(e) which is expressly incorporated herein by reference in its entirety.

BACKGROUND

[0002] 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..

[0003] 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.

[0004] In an equal-and opposite vernacular, the boot can release from the ski, or the ski can release from the boot.

[0005] 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

[0006] 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.

[0007] 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

[0008] 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.

[0009] 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

[0010] 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).

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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

[0015] 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.

[0016] 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.

[0017] 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.

[0018] 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).

[0019] 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.

[0020] 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.

[0021] 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.

[0022] 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.

[0023] 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.

[0024] 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).

[0025] 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.

[0026] 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.

[0027] 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

[0028] FIG. 1 illustrates a side view of the alpine ski binding heel unit;

[0029] FIG. 2 is a more detailed side view of the heel unit of FIG. 1;

[0030] FIG. 3 illustrates a cross-sectional top view of a lateral release mechanism including the spring biasing; and,

[0031] FIG. 4 is a more detailed cross-sectional top view of the lateral release mechanism of FIG. 3.

DETAILED DESCRIPTION

[0032] 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.

[0033] 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 19a and 19b stem section 17b, 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.

[0034] 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.

[0035] 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 19a and 19b on the aft-most end of the upper one-third stem section 17b 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.

[0036] 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.

[0037] 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.

[0038] 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 19a and 19b 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.

[0039] The vertical release cam follower 20 is made of plastic, while the moving lateral release cam 17 / 17b 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 19a and 19b can be heavily greased with moderately high viscosity low-friction grease such as molybdenum disulfide or the like. The wicking action of cam surfaces 19a and 19b, as in the way an eye-lid functions, preclude mud, road-salt and ice from interfering with smooth vertical release cam action.

[0040] Interface support 330 includes bottom surface, stop-lock/nut 29, teeth 30, longitudinal spring 32, and lower carriage 12.

[0041] 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).

[0042] 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.

[0043] The lower heel housing 27 fits to and integrates with lower carriage 12 by flanges 28. Specifically, flanges 28a, 28b, on each side of the lower heel housing 27, mate with lower carriage 12.

[0044] 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.

[0045] The vector decoupler assembly 60 includes cantilevered plate 57, vector decoupler tongue 60a, top surface 61, and low-friction elements 58 and 59.

[0046] 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 60a when a force is applied to the vector decoupler tongue 60a such that the vector decoupler tongue 60a 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 60a 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-coefficeint of friction / high impact at low-temperature grades of plastics that are already well known in the art.

[0047] 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 60a 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 60a 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 60a and the bottom surface of the cantilevered plate 57. The application provides a low-friction interface between the vector decoupler tongue 60a and the cantilevered

plate 57.

[0048] 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 17c and interfacing lateral release cam surfaces 27a, thereby decoupling the effects of induced roll moments from the lateral heel release.

[0049] 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 27a 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 60a and 61. Component 61 can be affixed to the lower heel housing 27 by band 18 that wraps around the lower heel housing 27.

[0050] 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 60a 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.

[0051] 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 60a and cantilevered plate 57. In another embodiment, the side-to-side movement of the tongue 60a 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.

[0052] 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 36a and 36b, 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 51a, 51b, 51c, 51d, 51f, 51g.

[0053] Referring to FIGs. 2 and 4, the lateral heel release mechanism comprises lateral release cam surfaces 17c and lower heel housing lateral cam surfaces 27a, 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, 36a and 36b (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 36a (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 36a (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.

[0054] 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.

[0055] The lateral release cam surfaces 17c and 27a of the lateral release cam 17 and the mating cam surfaces 27a of the lower heel housing 27 displace relative to each other in a path described by their curved surfaces – specifically, curved surfaces 50a, 50b, 50c, 50d, 50f, 50g and their respective incremental interface curved surfaces 51a, 51b, 51c, 51d, 51f, 51g.

[0056] 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 50a, 50b, 50c, 50d, 50f, 50g move by translating and rotating (tilting) from their at-rest position to the next point of cam contact 50c and 51c, biased by lateral heel release spring 35. Accordingly, cam surfaces 50b and 51b space apart the "a-a" (as in 50a and 51a) 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 27a. 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 50a and 51a are contacting each other.

[0057] 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.

[0058] 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.

[0059] 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.

[0060] 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 17c and 27a.

[0061] 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 50g and 51g) 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.

[0062] 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.

[0063] In one embodiment, a compressible elastomeric material 54 such as Dupont Crayton is placed between lateral release cam surfaces 27a and 17c 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 51h. 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, 36a, 36b, 41, 42, 37 and 17 to allow for

periodic cleaning of the lateral release cam surfaces 17c and 27a. Snow pack does not build-up and compress into ice in the gap between 17c and 27a 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.

[0064] 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.

[0065] Other aspects, modifications, and embodiments are within the scope of the following claims.

What is claimed is:

1. A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly coupled to the lower heel assembly, including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski;

(iii) a vector decoupling assembly for separating and isolating two or more force vectors applied to the safety binding assembly; and,

(iv) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

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2. A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

3. A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

4. A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

5. A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having six cams, three disposed on each side of the longitudinal and vertical plane of the ski.

6. A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

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7. A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a tension shaft having a first end and a second end, the first end of the tension shaft being pivotally attached to the lateral release assembly, and the second end of the tension shaft being adjustably attached to the lower heel assembly; and,

(ii) a spring coupled to the tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft.

8. A safety binding assembly according to claim 1, wherein the vector decoupling assembly includes a tongue component having a first end and a second end, the first end being fixedly attached to the lateral release assembly and the second end being disposed between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

9. A safety binding assembly according to claim 8, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

10. A safety binding assembly according to claim 1, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component.

11. A safety binding assembly according to claim 1, further including a contaminant blocking material disposed between the surface having the first plurality of cams and the surface having the second plurality of cams.

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Atty. Docket No. 289630.120 US1

12. A safety binding assembly according to claim 1, further including a heel pad for reducing friction between a bottom surface of the heel portion of the ski boot and the safety binding assembly.

13. A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski; and,

(iii) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

14. A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

15. A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

16. A safety binding assembly according to claim 13, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

17. A safety binding assembly according to claim 13, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

18. A safety binding assembly according to claim 13, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component

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Atty. Docket No. 289630.120 US1

19. 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, wherein the safety binding includes a lower heel assembly attached to the ski and 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, comprising:

a tongue component having a first end and a second end, the first end being fixedly attached to a lateral release assembly and the second end being disposed between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

20. A safety binding assembly according to claim 19, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

ABSTRACT

[0066] 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.

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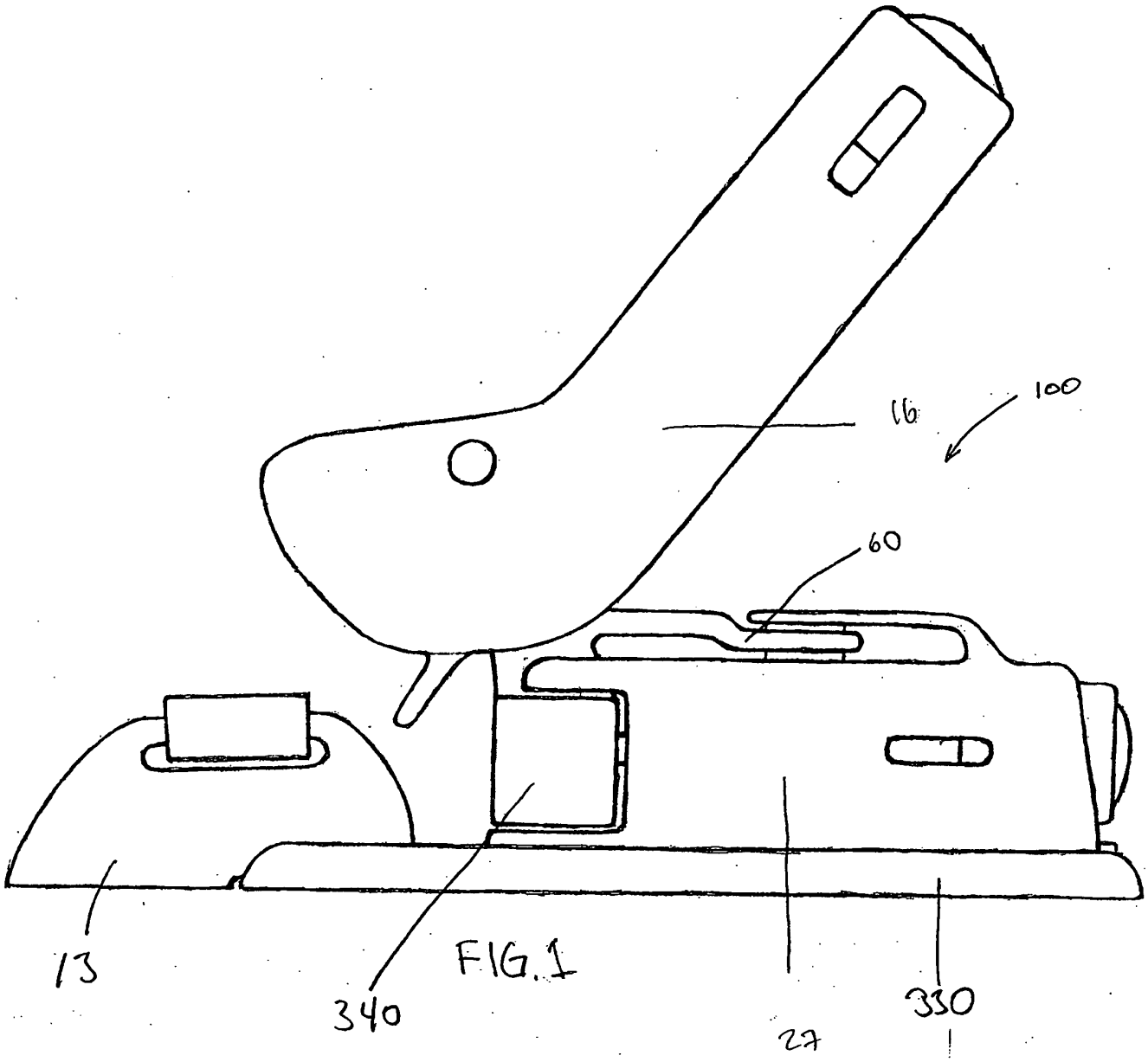

FIG. 1

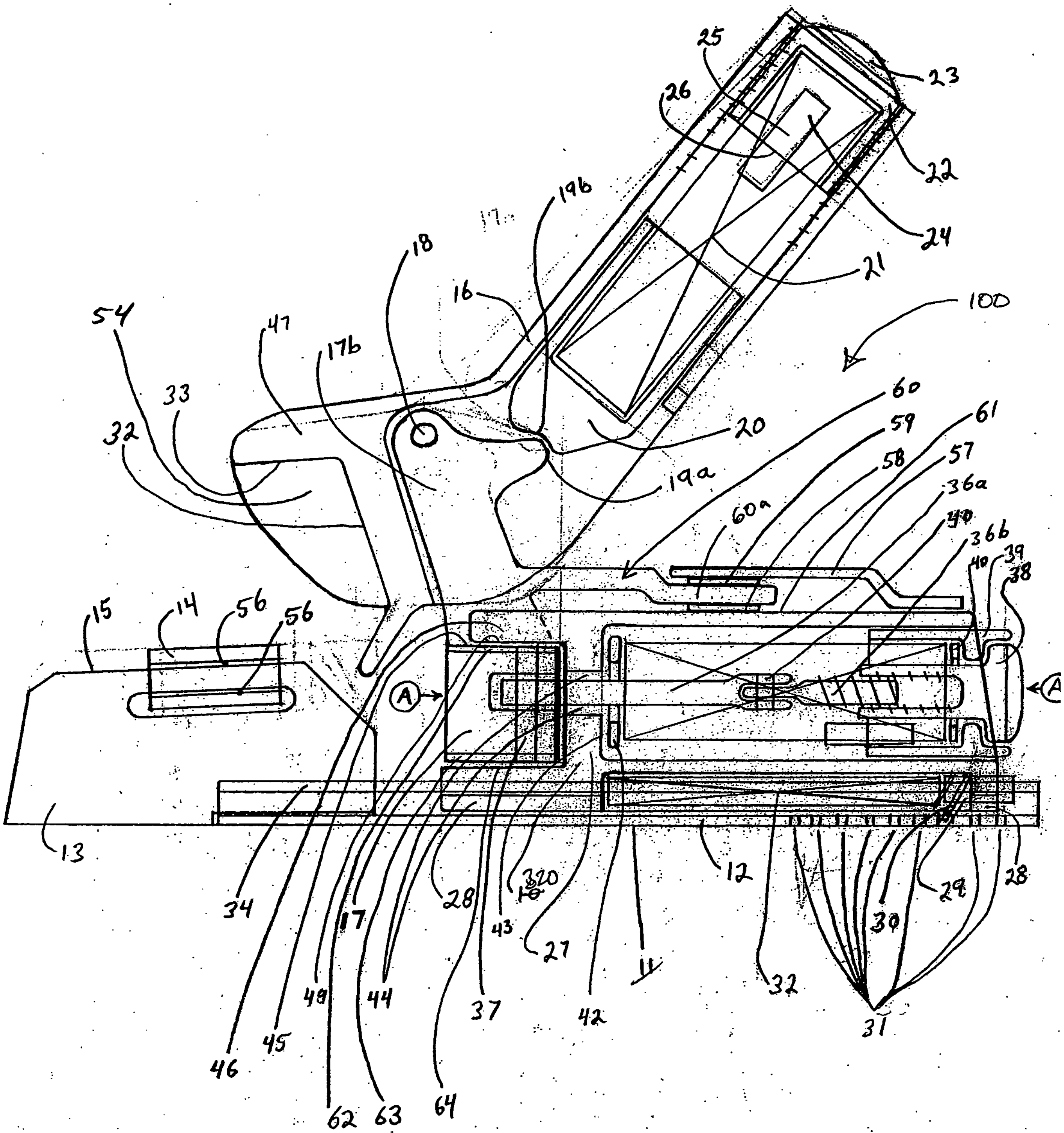

FIG 2

R.H.

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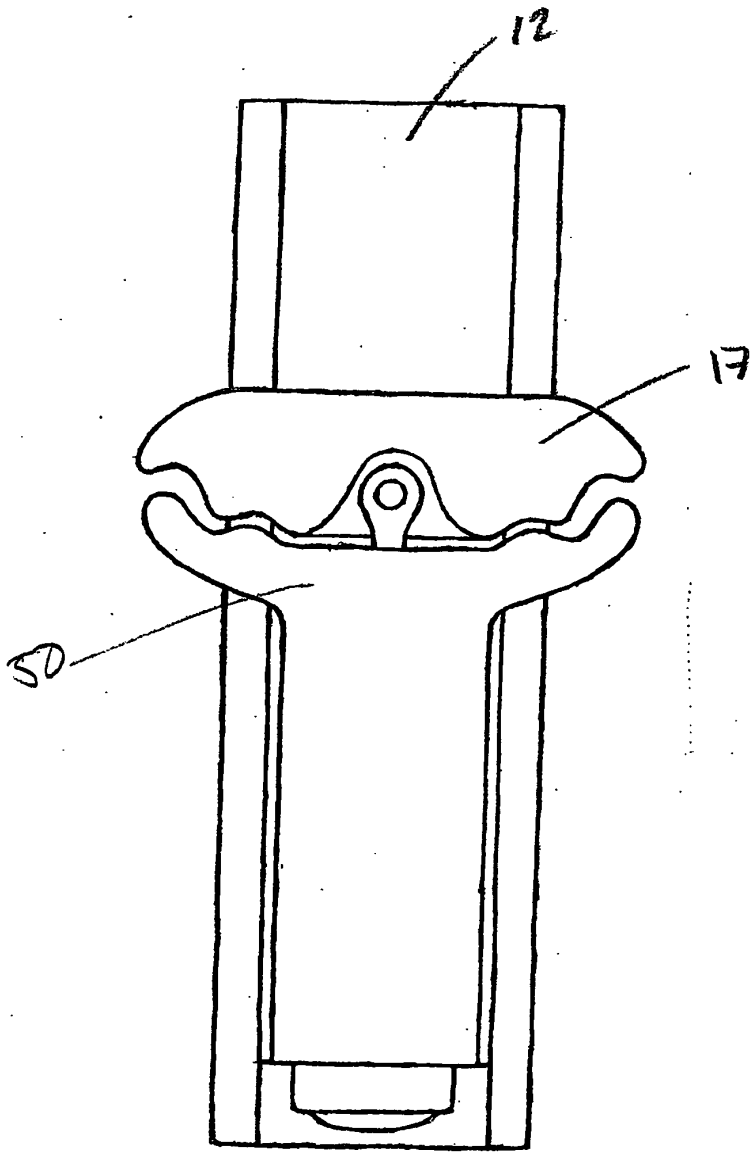

FIG. 3

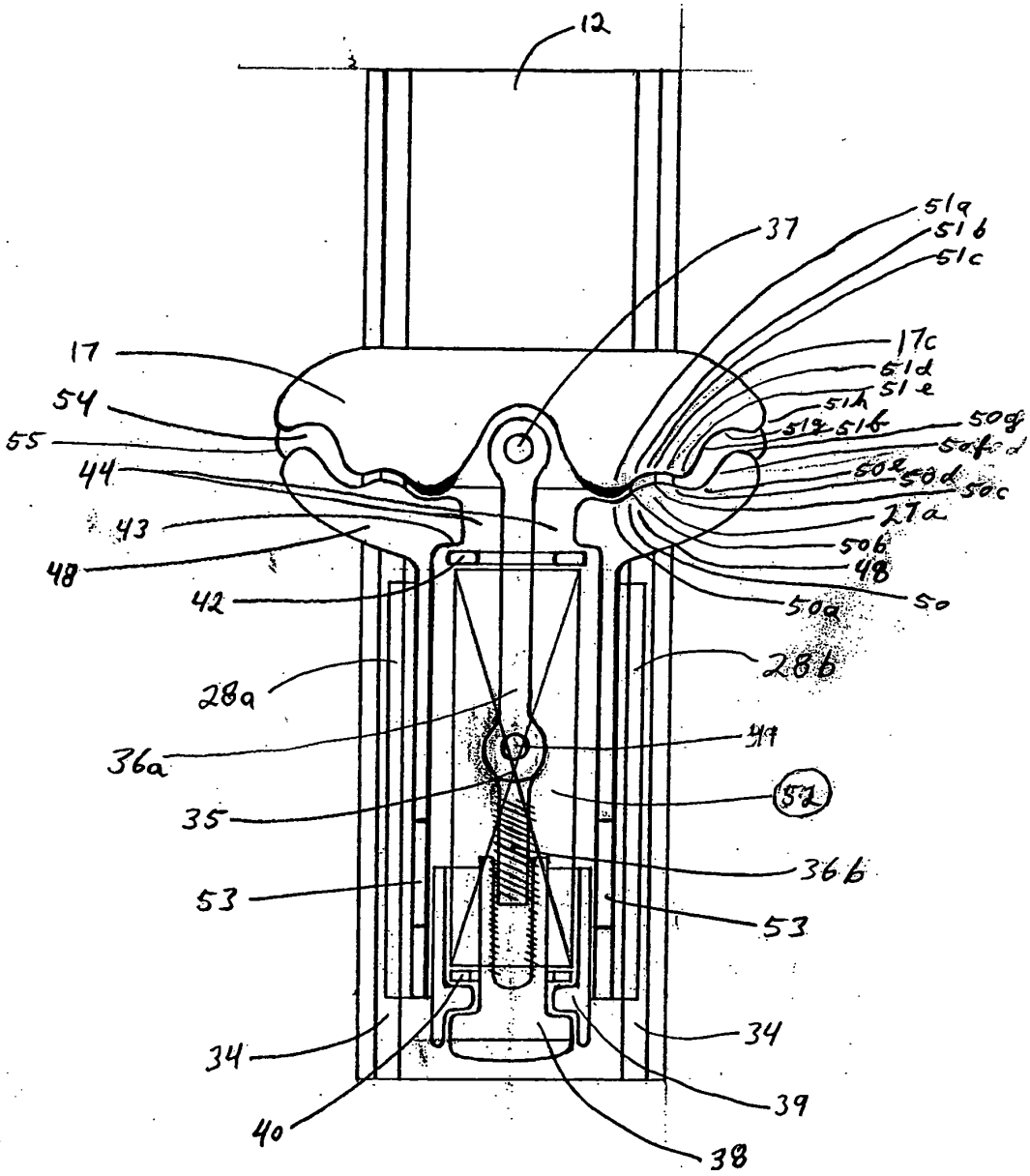
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FIG. 4

FINAL

PAGE 1 of 3
2/17/04

DECLARATION AND POWER OF ATTORNEY
(Attorney Docket No. 289630.120 US1)

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship is as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter, which is claimed and for which a patent is sought on the invention entitled:

ALPINE SKI BINDING HEEL UNIT

the specification of which (check only one):

[X] is attached hereto.

[ ] was filed as United States Patent Application
Serial No. _____
on _____
and was amended
on _____
(if applicable)

[ ] was filed as PCT Patent Application
Serial No. _____
on _____
and was amended under PCT Article 19
on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of the claims of this application in accordance with Title 37, Code of Federal Regulations, Sections 1.56(a) and 1.56(b).

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

COMBINED DECLARATION AND POWER OF ATTORNEY
(Attorney Docket No. 289630.120 US1)

PAGE 2 OF 3
2/17/04

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119(a)-(d) or 365(b):

COUNTRY (if PCT indicate PCT)	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 U.S.C. §119(a)-(b) or 365(b) (YES/NO)

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional patent application(s) listed below:

APPLICATION NUMBER	DATE OF FILING	STATUS: (PENDING OR ABANDONED)
60/448,645	February 18, 2003	Pending

I hereby claim the benefit under Title 35, United States Code, § 120 or 365(c) of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112. I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56 which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATION OR PCT INTERNATIONAL APPLICATION(S) DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. § 120 or 365(c):

APPLICATION NUMBER	DATE OF FILING (day, month, year)	STATUS: (PATENTED, PENDING OR ABANDONED)

POWER OF ATTORNEY: As named inventors, we hereby appoint the attorneys and/or agents associated with **Customer Number 23483** to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, the mailing address and telephone number of each of whom is HALE AND DORR LLP, 60 State Street, Boston, Massachusetts 02109 and (617) 526-6000, with full power of substitution and revocation to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

BOSTON 1853021v1

COMBINED DECLARATION AND POWER OF ATTORNEY
(Attorney Docket No. 289630.120 US1)

R.J.H.
PAGE 3 of 3
2/17/04

Send Correspondence To

Ronald R. Demsher
Hale and Dorr LLP
60 State Street
Boston, MA 02109

Direct Telephone Calls To

Ronald R. Demsher
(617) 526-6105

Wherefore I petition that letters patent be granted to me for the invention or discovery described and claimed in the attached specification and claims, and hereby subscribe my name to said specification and claims and to the foregoing declaration, power of attorney, and this petition.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements

were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first and only inventor: Richard J. Howell

Inventor's signature _____ Date FEB 17, 2004

Country of Citizenship: United States of America

Residence: Stowe, Vermont

Post Office Address: 287 Mountain Road, #7, Stowe, Vermont 05672

BOSTON 1863021v1

Express Mail Label No.: EV 207558868 US
Date of Deposit: February 17, 2004

Application Data Sheet

Application Information

Application Type::	Regular
Subject Matter::	Utility
CD-ROM or CD-R?::	None
Title::	ALPINE SKI BINDING HEEL UNIT
Attorney Docket Number::	289630.120 US1
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	1
Total Drawing Sheets::	4
Small Entity?::	Yes
Petition Included?::	No
Secrecy Order in Parent Appl.?::	No

Applicant Information

Applicant Authority Type::	Inventor
Primary Citizenship Country::	UNITED STATES OF AMERICA
Status::	Full Capacity
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Middle Name::	J.
Family Name::	HOWELL
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State or Province of Residence::	VERMONT
Country of Residence::	USA
Street of mailing address::	287 MOUNTAIN ROAD #11

Express Mail Label No.: EV 207558868 US
Date of Deposit: February 17, 2004

City of mailing address::	STOWE
State or Province of mailing address::	VERMONT
Country of mailing address::	USA
Postal or Zip Code of mailing address::	05672

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E-Mail address::	RONALD.DEMSHER@HALEDORR.COM

Representative Information

Representative Customer Number:: 23483

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	Application claiming benefit under 35 USC 119(e)	60/448,645	02/18/03

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10780455

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20=	* —
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL	385	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

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X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
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PATENT APPLICATION SERIAL NO. _____

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PTO-1556
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1

CONFIRMATION NO. 1396

23483
HALE AND DORR, LLP
60 STATE STREET
BOSTON, MA 02109

FORMALITIES LETTER

OC000000012585403

Date Mailed: 05/11/2004

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121 are required. The drawings submitted are not acceptable because:
  - The drawings submitted to the Office are not electronically reproducible. Drawing sheets must be submitted on paper, which is flexible, strong, white, smooth, non-shiny, and durable (see 37 CFR 1.84(e)). See Figure(s) 2 & 4.

Replies should be mailed to: Mail Stop Missing Parts
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C. Young

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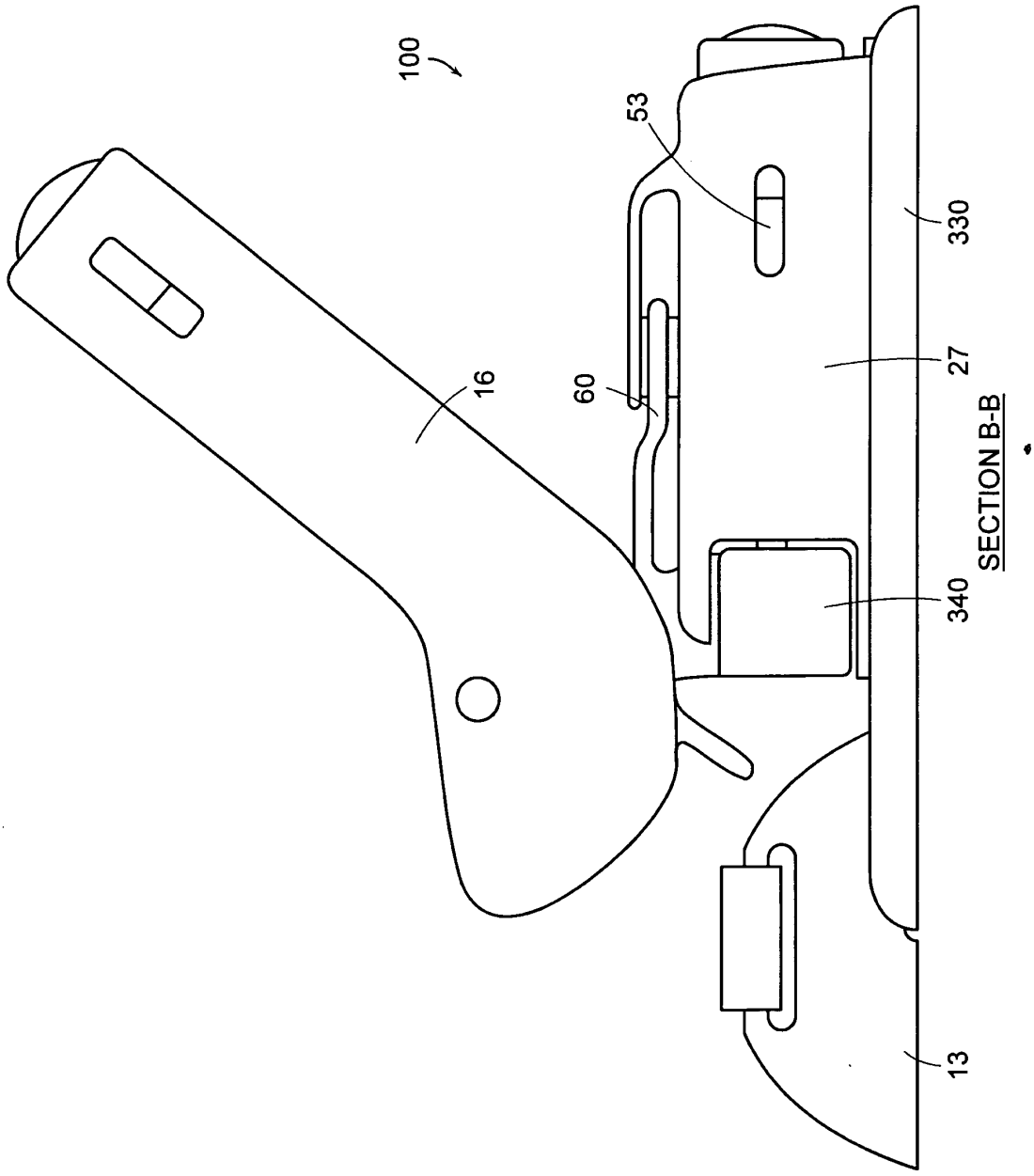
PART 3 - OFFICE COPY

FIG. 1



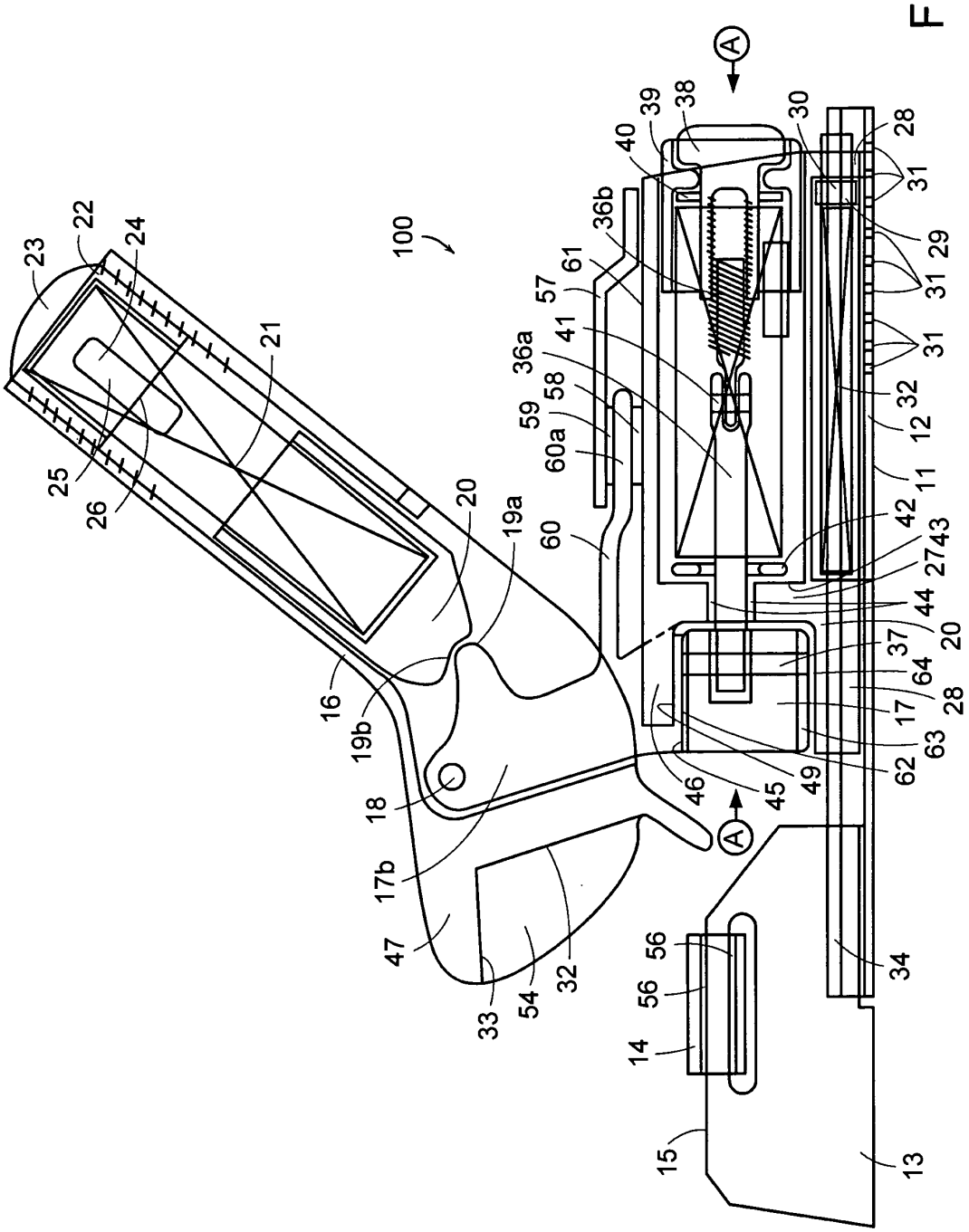

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FIG. 2

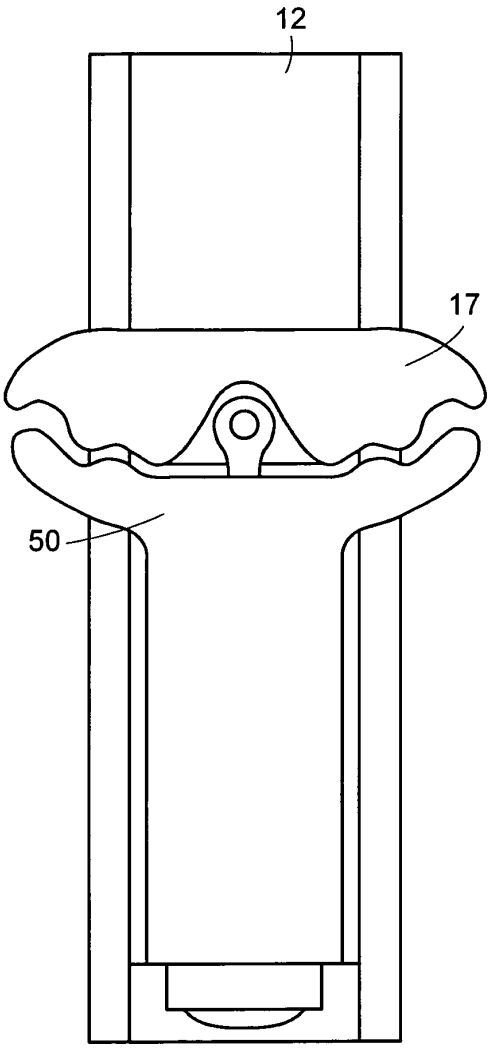
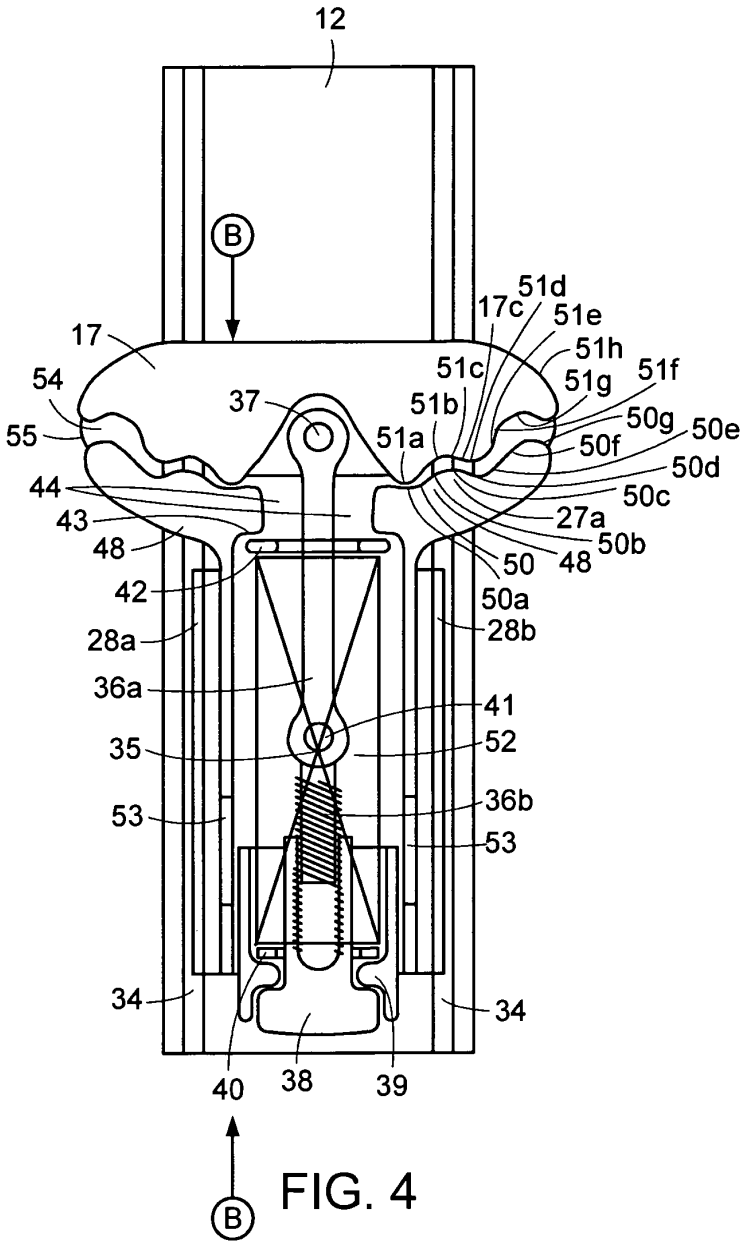


FIG. 3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36b
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B

FIG. 4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 289630.120US1)

In re Application of:	Howell, Richard J.	)	Examiner: To Be Assigned
Serial No.	10/780,455	)	Group Art Unit: 3618
Filing Date:	February 17, 2004	)	
For:	ALPINE SKI BINDING HEEL UNIT		

****

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 CFR §1.8

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P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR SUBMISSION OF REPLACEMENT DRAWINGS PRIOR TO PUBLICATION OF APPLICATION

Dear Sir:

Pursuant to 37 CFR § 1.182, Applicants hereby petition to replace the drawings presently on file with the enclosed four (4) sheets of formal drawings (Figures 1-4) prior to the publication of the application. The petition fee of $130 set forth in 37 CFR § 1.17 (h) should be charged to Deposit Account No. 08-0219.

No additional fees are believed to be due in connection with this petition. However, please charge any additional fees to Deposit Account No. 08-0219.

Respectfully submitted,

Date: August 20, 2004

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

Ronald R. Demsher, Reg. No. 42,478
Attorney/Agent for Applicant

08/25/2004 FFANAIA2 00000041 080219 10780455
01 FC:1460 130.00 DA

FIG. 1

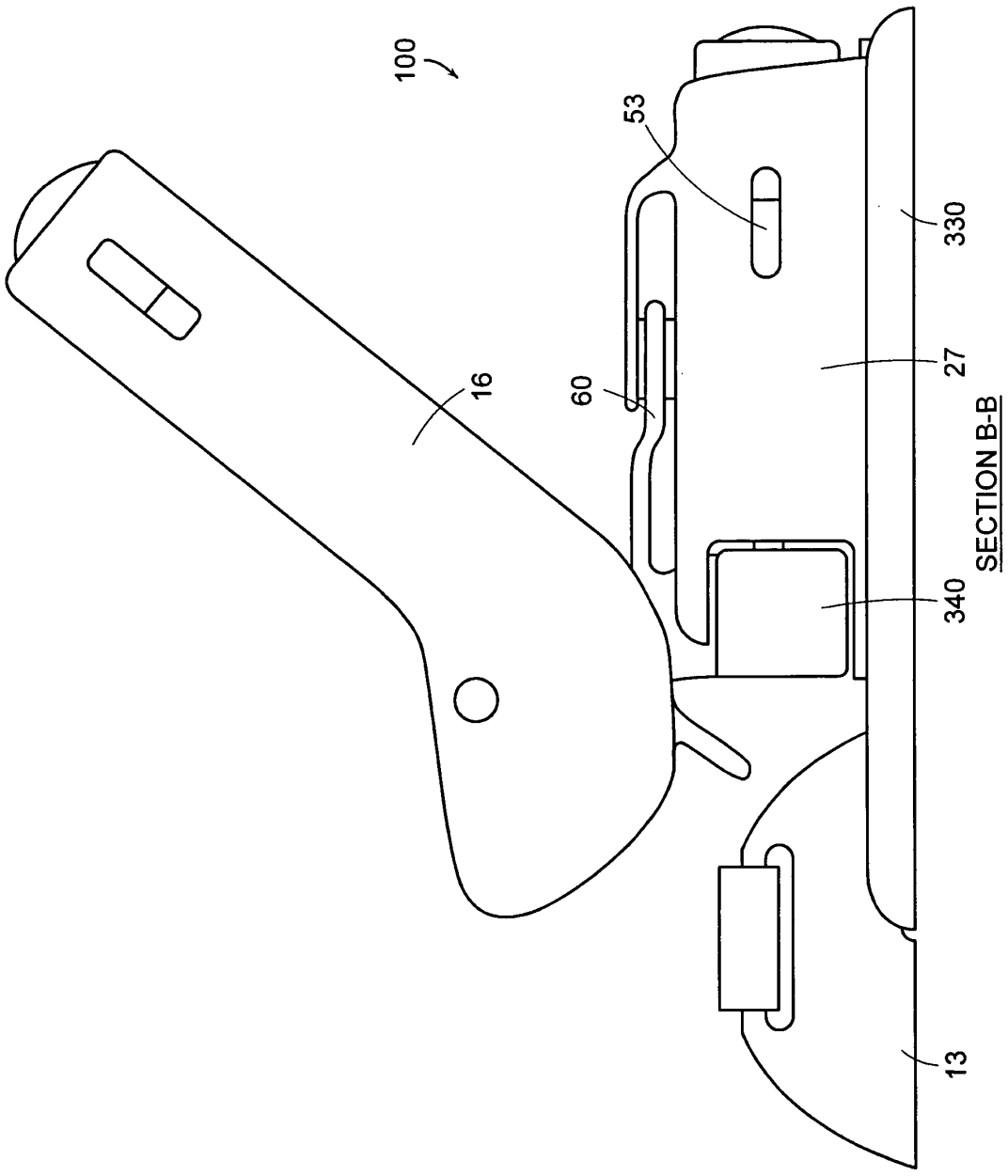
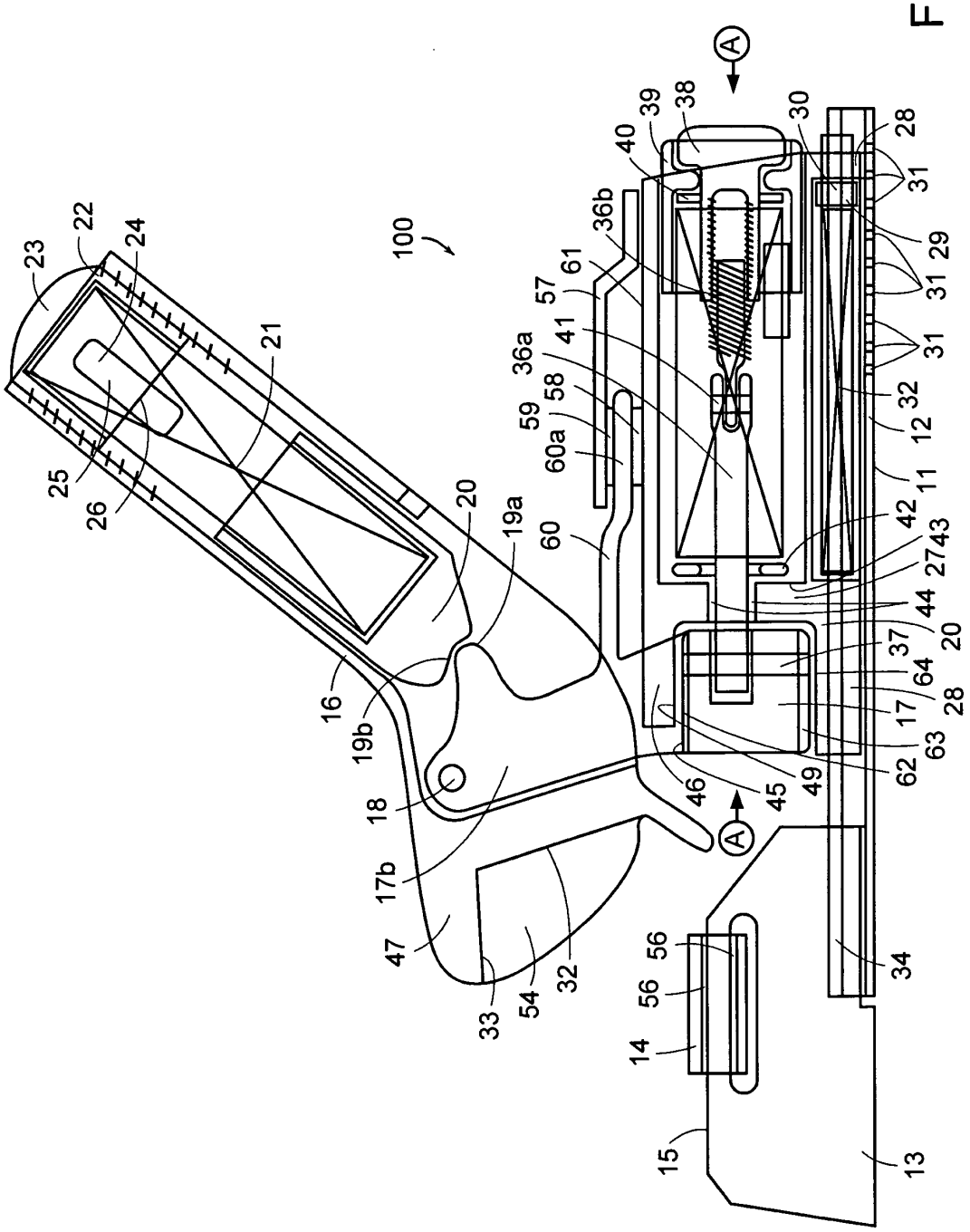


FIG. 2



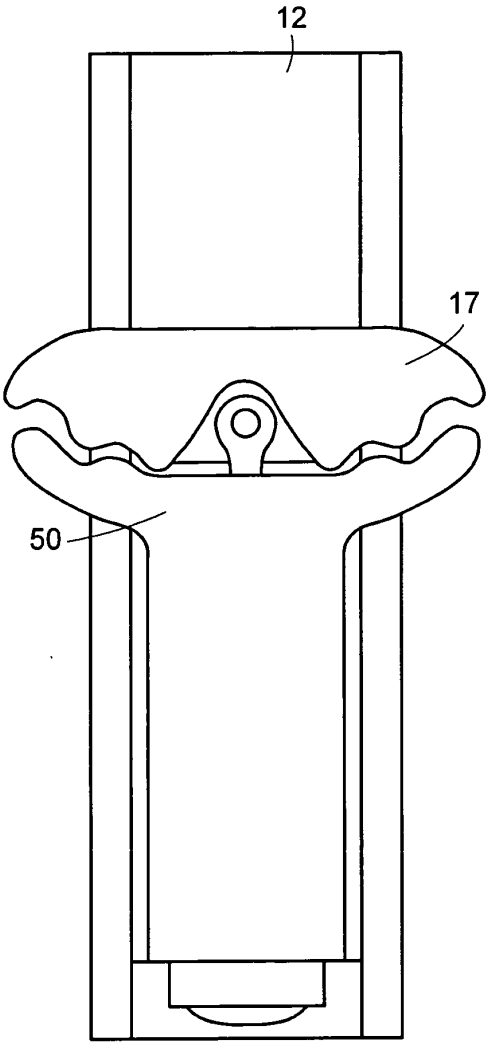


FIG. 3

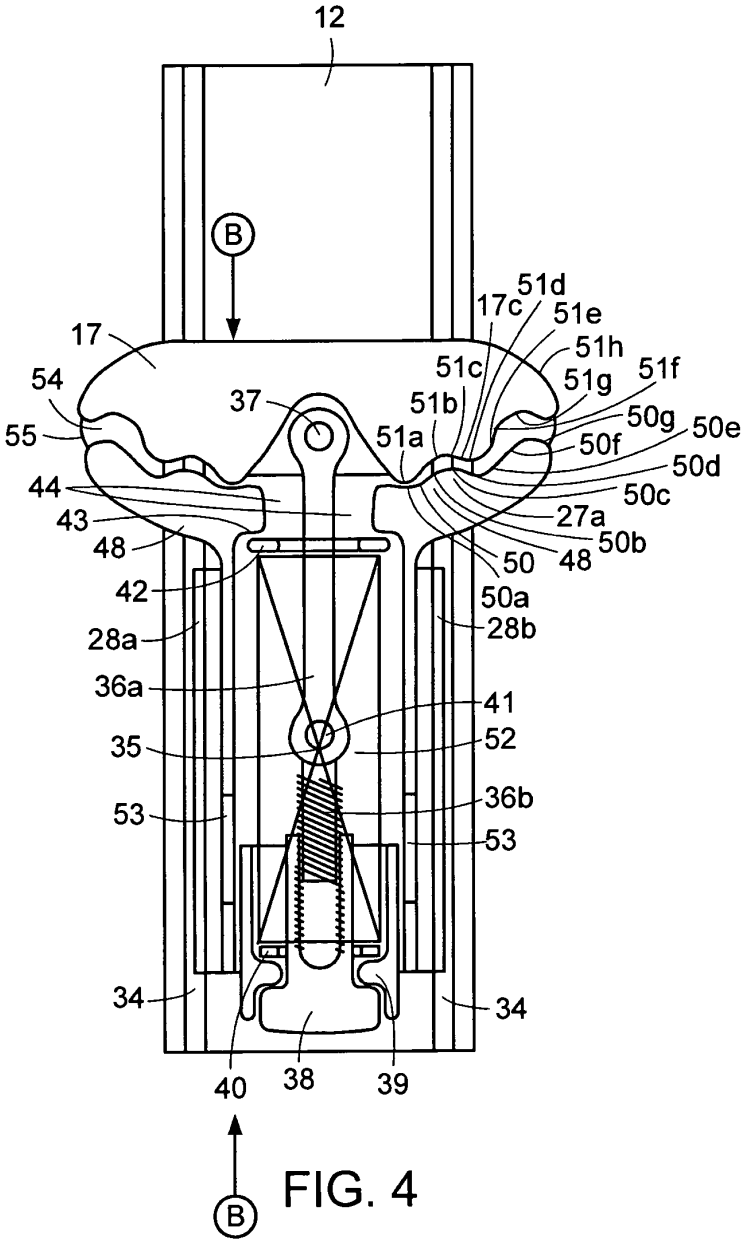


FIG. 4

IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 289630.120US1)

In re Application of:	Howell, Richard J.	)	Examiner: To Be Assigned
Serial No.	10/780,455	)	Group Art Unit: 3618
Filing Date:	February 17, 2004	)	
For:	ALPINE SKI BINDING HEEL UNIT		

****

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: 8/20/04

Leslie Rukstalis

****

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

TRANSMITTAL LETTER

Dear Sir/Madam:

Enclosed herewith for filing in the above-referenced patent application are the following documents:

1. Petition for Submission of Replacement Drawings Prior to Publication of Application;
2. Formal Drawings (4 Sheets, Figures 1-4);
3. Petition Fee of $130.00;
4. Certificate of First Class Mailing; and
5. Return Postcard.

No additional fees are believed to be due in connection with this matter. However, please charge any additional fees that might be due to Deposit Account No. 08-0219.

Respectfully submitted,

Date: August 20, 2004

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

Ronald R. Demsher, Reg. No. 42,478
Attorney/Agent for Applicant

United States
Patent And
Trademark Office

P.O. Box 1450, Alexandria, Virginia 22313-1450 – www.uspto.gov

PETITION DECISION

09/24/04

Eric L. Prahl
Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109

Dear Applicant:

The Box PG Pub replacement drawings for application number 10/780455 received on 08/23/04 by the U. S. Patent and Trademark Office will be included for patent publication.

Telephone inquiries should be directed to Kaletus King, Office of Pre-Grant Publication 703 605-4283.

Kaletus King
Signature of Reviewer, Office of Pre-Grant Publication

1 FW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket Number: 289630.120US1)

In re Application of:	Richard J. Howell	)	
		)	
Serial No.:	10/780,455	)	Examiner: Not Yet Assigned
		)	
Filed:	February 17, 2004	)	Group Art Unit: 3618
For:	ALPINE SKI BINDING HEEL UNIT		

****

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: 11/17/2004

Amanda Ripley

****

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

TRANSMITTAL LETTER

Dear Sir:

Enclosed herewith for filing in the above-identified patent application are the following documents:

1. Information Disclosure Statement (2 pages);
2. Form PTO-1449 (1 page);
3. Reference as cited;
4. Certificate of First Class Mailing, and;
5. Return Postcard.

No fees are believed to be due in connection with this submission. However, please charge any fees that might be due or credit any overpayment to our Deposit Account No. 08-0219.

Respectfully submitted,

Date: NOVEMBER 17, 2004

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

Ronald R. Demsher, Reg. No. 42,478
Attorney/Agent for Applicant

US1DOCS 2307565v1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket Number: 289630.120US1)

In re Application of:	Richard J. Howell	)	
		)	
Serial No.:	10/780,455	)	Examiner: Not Yet Assigned
		)	
Filed:	February 17, 2004	)	Group Art Unit: 3618

For: ALPINE SKI BINDING HEEL UNIT

****

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: 11/17/2004

Amanda Ripley

****

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

INFORMATION DISCLOSURE STATEMENT

Commissioner:

Applicant and their legal representatives hereby make of record on the attached PTO Form-1449 the following publications, which are known to them and considered warranting disclosure under 37 C.F.R. §1.56. A copy of the non-patent literature is enclosed in accordance with 37 C.F.R. 1.98(a)(2).

It is respectfully requested that the information above be expressly considered during the prosecution of this application and that the publications be made of record therein and appear among the "References Cited" on any patent to issue therefrom. In this regard, it is requested that the Examiner initial and return a copy of the enclosed Form PTO-1449 with the next Patent Office Communication.

This submission does not represent that a search has been made and does not constitute an admission that the listed documents are material to patentability or that the listed documents are prior art. If it should be determined that any of the listed documents do not constitute "prior art" under United States law, Applicants reserve the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97 (b) (3), before the mailing date of a first Office Action on the merits, and therefore no fee is believed to be due. The Commissioner, however, is hereby authorized to charge any fees necessary to maintain the pendency of this application to Deposit Account No. 08-0219.

Respectfully submitted,

Date: NOVEMBER 17, 2004

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

Ronald R. Demsher, Reg. No. 42,478
Attorney/Agent for Applicant

US1DOCS 2307561v1

Subt. Form PTO-1449

INFORMATION DISCLOSURE IN AN APPLICATION

(Use several sheets if necessary)

Docket Number	Application Number
289630.120US1	10/780,455

Applicant	
Richard J. Howell	

Filing Date	Group Art Unit
February 17, 2004	3618

Sheet	1	OF	1

U.S. Patent Documents

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2,676,813	04/27/1954	Beyl	280	11.35	
	3,606,370	09/20/1971	Spademan	280	11.35 T	
	3,610,650	10/05/1971	Kroger et al.	280	11.35 T	
	3,727,932	04/17/1973	Druss et al.	280	11.35 K	
	3,865,388	02/11/1975	Haldemann	280	11.35 D	
	3,897,076	07/29/1975	Beyl	280	11.35 T	
	3,902,728	09/02/1975	Salomon	280	11.35 T	
	3,905,613	09/16/1975	Romeo	280	11.35 R	
	3,909,029	09/30/1975	Salomon	280	11.35 T	
	3,936,062	02/03/1976	Schweizer	280	11.35 D	
	4,065,151	12/27/1977	Weinstein et al.	280	618	
	4,264,088	04/28/1981	Replogle	280	633	
	4,268,064	05/19/1981	Svoboda	280	625	
	4,286,801	09/01/1981	Richert	280	629	
	4,288,094	09/08/1981	Svoboda	280	623	
	4,288,095	09/08/1981	Wittmann et al.	280	625	
	4,294,461	10/13/1981	Eckart	280	618	
	4,307,898	12/29/1981	Schmidt et al.	282	27.5	
	4,429,896	02/07/1984	Spademan	280	624	
	4,553,772	11/19/1985	Boussemart et al.	280	628	
	4,753,452	06/28/1988	Boussemart et al.	280	628	
	20020101063	08/01/2002	Dodge	280	624	

Foreign Patent Documents

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

Other Documents (Including Author, Title, Date Pertinent Pages, Etc.)

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

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation is considered, whether or not citation is in conformance with MPEP § 609: Draw Line through citation if not conformance and not considered. Include copy with next communication to applicant.

BOSTON US1DOCS 2303184v1

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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

23483 7590 03/24/2006

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 03/24/2006

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/780,455	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 *30days* 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 *11/19/04*.

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) *1-20* 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) _____ is/are rejected.

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

8)☒ Claim(s) *1-20* 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 _____ 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-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-18, drawn to a safety binding assembly, classified in class 280, subclass 628.

   II. Claims 19 and 20, drawn to a vector decoupling assembly, classified in class 280, subclass 611.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not require "vector decoupling". The subcombination has separate utility such as in steering and stabilizing systems.

2. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

3. Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

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, Christopher Ellis can be reached on 571-272-6914. 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).

Avery
March 20, 2006

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

PTO/SB/21 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	2

Application Number	10/780,455
Filing Date	February 17, 2004
First Named Inventor	Richard J. Howell
Art Unit	3618
Examiner Name	Bridget D. Avery
Attorney Docket Number	289630.120US1

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
- [ ] Fee Attached
- [X] Response to Restriction Requirement – 1 page
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
- [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [X] Other Enclosure(s) (please Identify below):

POSTCARD

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WILMER CUTLER PICKERING HALE AND DORR LLP		
Signature			
Printed name	Ronald R. Demsher		
Date	April 5, 2006	Reg. No.	42,478

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: April 5, 2006 Signature: _____ (Maureen Divito)

US1DOCS 5598020v1

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: 4/5 2006 Signature: (Maureen Divito)

Docket No.: 289630.120US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Richard J. Howell

Application No.: 10/780,455 Confirmation No.: 1396

Filed: February 17, 2004 Art Unit: 3618

For: ALPINE SKI BINDING HEEL UNIT Examiner: Bridget D. Avery

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

RESPONSE TO RESTRICTION REQUIREMENT

Dear Sir:

In response to the restriction requirement set forth in the Office Action mailed March 24, 2006, Applicant hereby provisionally elects Group II claims for continued examination.

The Examiner has required restriction between:

I. Claims 1-18, drawn to a safety binding assembly, classified in class 280, subclass 628.

II. Claims 19-20, drawn to a vector decoupling assembly, classified in class 280, subclass 611.

Dated: April 5 2006

Respectfully submitted,

By
Ronald R. Demsher 42,478
Registration No.: ,
WILMER CUTLER PICKERING HALE AND DORR LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000
Attorney for Applicant

US1DOCS 5596240v1

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10780455

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20=	* —
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
XS 9=		OR	XS16=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL	385	OR	TOTAL	

CLAIMS AS AMENDED - PART II 4-7-06

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 20	Minus	** 20	= —
Independent	* 3	Minus	*** 3	= —
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=	—	OR	XS18=	—
X43=	—	OR	X86=	—
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	—

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
XS 9=		OR	XS18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

23483 7590 07/03/2006

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	**PAPER NUMBER**
3618	

DATE MAILED: 07/03/2006

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/780,455	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 *07 April 2006*.

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) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19 and 20* 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 *23 August 2004* 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-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Information Disclosure Statement filed by applicant on November 19, 2004 is acknowledged and has been considered.

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.

2. Claims 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Salomon (US Patent 3,734,522).

Salomon teaches a vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding (1) securing a heel portion of a ski boot to a ski (1); the safety binding (as defined by heel-piece 2) includes a lower heel assembly (80 as shown in Figures 10 and 11) attached to the ski (1) and an upper heel assembly (clearly shown referenced as 2) coupled to the lower heel assembly (80) and having a lateral release assembly for applying lateral securing pressure to the ski boot, including: a tongue component (85) having a first end and a second end, the first end being fixedly attached to a lateral release assembly (82) and the second end being disposed between a first/lower surface fixedly attached to the lower heel assembly (80) and a second/upper surface fixedly attached to the lower heel assembly (80), such that

the tongue component (85), the first surface and the second surface (80) cooperate to allow motion of the lateral release assembly to occur only in the longitudinal (as defined by force arrow 96) and horizontal plane of the ski (1). The tongue component (85), the first/lower surface and the second/upper surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski (1).

Conclusion

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

Eckart shows a safety ski binding.

Swenson shows an adjustable release heel ski binding.

Swenson shows an adjustable release ski binding.

Greene shows a ski binding.

Wilkes shows ski bindings.

4. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 571-272-6691.

Avery

June 22, 2006

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Subt. Form PTO-1449

INFORMATION DISCLOSURE IN AN APPLICATION

(Use several sheets if necessary)

Sheet 1 OF 1

Docket Number	Application Number
289630.120US1	10/780,455
Applicant: Richard J. Howell	
Filing Date: February 17, 2004	Group Art Unit: 3618

U.S. Patent Documents

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
BA	2,676,813	04/27/1954	Beyl	280	11.35	
	3,606,370	09/20/1971	Spademan	280	11.35 T	
	3,610,650	10/05/1971	Kroger et al.	280	11.35 T	
	3,727,932	04/17/1973	Druss et al.	280	11.35 K	
	3,865,388	02/11/1975	Haldemann	280	11.35 D	
	3,897,076	07/29/1975	Beyl	280	11.35 T	
	3,902,728	09/02/1975	Salomon	280	11.35 T	
	3,905,613	09/16/1975	Romeo	280	11.35 R	
	3,909,029	09/30/1975	Salomon	280	11.35 T	
	3,936,062	02/03/1976	Schweizer	280	11.35 D	
	4,065,151	12/27/1977	Weinstein et al.	280	618	
	4,264,088	04/28/1981	Replogle	280	633	
	4,268,064	05/19/1981	Svoboda	280	625	
	4,286,801	09/01/1981	Richert	280	629	
	4,288,094	09/08/1981	Svoboda	280	623	
	4,288,095	09/08/1981	Wittmann et al.	280	625	
	4,294,461	10/13/1981	Eckart	280	618	
	4,307,898	12/29/1981	Schmidt et al.	282	27.5	
	4,429,896	02/07/1984	Spademan	280	624	
	4,553,772	11/19/1985	Boussemart et al.	280	628	
	4,753,452	06/28/1988	Boussemart et al.	280	628	
BA	20020101063	08/01/2002	Dodge	280	624	

Foreign Patent Documents

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

Other Documents (Including Author, Title, Date Pertinent Pages, Etc.)

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

EXAMINER: B-Lyst Henry DATE CONSIDERED: 6/22/06

EXAMINER: Initial if citation is considered, whether or not citation is in conformance with MPEP § 609: Draw Line through citation if not conformance and not considered. Include copy with next communication to applicant.

BOSTON US1DOCS 2303184v1

Notice of References Cited	Application/Control No. 10/780,455	Applicant(s)/Patent Under Reexamination HOWELL, RICHARD J.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,070,034	01-1978	Swenson, Glen R.	280/625
*	B	US-4,052,086	10-1977	Eckart, Erich	280/618
*	C	US-3,992,032	11-1976	Swenson, Glen R.	280/632
*	D	US-3,825,273	07-1974	Greene, Leonard M.	280/618
*	E	US-3,773,344	11-1973	Wilkes, Donald F.	280/627
*	F	US-3,734,522	05-1973	Salomon, Georges Pierre Joseph	280/634
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/780,455	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
280	625 628 631 618 626 627	6/22/2006	BA
280	623 632	6/22/2006	BA
280	634	6/22/2006	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/780,455	HOWELL, RICHARD J.
Examiner	**Art Unit**
Bridget Avery	3618

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	6/22/06								
	1	N								
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PTO/SB/21 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/780455-Conf. #1396
Filing Date	February 17, 2004
First Named Inventor	Richard J. HOWELL
Art Unit	3618
Examiner Name	B. D. Avery
Total Number of Pages in This Submission: 9	Attorney Docket Number: 0289630.00120US1

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
- [ ] Fee Attached
- [x] Amendment/Reply (8 pages)
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
- [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

POSTCARD

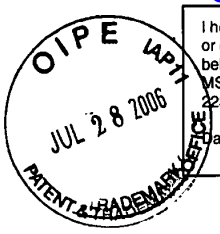
Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WILMER CUTLER PICKERING HALE AND DORR LLP		
Signature	R R Demsher		
Printed name	Ronald R. Demsher		
Date	July 25, 2006	Reg. No.	42,478

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: July 25, 2006 Signature: Maureen Divito (Maureen Divito)



I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: 7/25/06 Signature: Maureen Divito
(Maureen Divito)

Docket No.: 0289630.00120US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	1396
Application No.:	10/780455	Art Unit:	3618
Filed:	February 17, 2004	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL UNIT		

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

RESPONSE TO NON-FINAL OFFICE ACTION

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated July 3, 2006, please reconsider the above-identified U.S. patent application in view 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 7 of this paper.

THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly coupled to the lower heel assembly, including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski;

(iii) a vector decoupling assembly for separating and isolating two or more force vectors applied to the safety binding assembly; and,

(iv) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

2. (Withdrawn) A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

3. (Withdrawn) A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

4. (Withdrawn) A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

5. (Withdrawn) A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having six cams, three disposed on each side of the longitudinal and vertical plane of the ski.

6. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

7. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a tension shaft having a first end and a second end, the first end of the tension shaft being pivotally attached to the lateral release assembly, and the second end of the tension shaft being adjustably attached to the lower heel assembly; and,

(ii) a spring coupled to the tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft.

8. (Withdrawn) A safety binding assembly according to claim 1, wherein the vector decoupling assembly includes a tongue component having a first end and a second end, the first end being fixedly attached to the lateral release assembly and the second end being disposed

between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

9. (Withdrawn) A safety binding assembly according to claim 8, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

10. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component.

11. (Withdrawn) A safety binding assembly according to claim 1, further including a contaminant blocking material disposed between the surface having the first plurality of cams and the surface having the second plurality of cams.

12. (Withdrawn) A safety binding assembly according to claim 1, further including a heel pad for reducing friction between a bottom surface of the heel portion of the ski boot and the safety binding assembly.

13. (Withdrawn) A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski; and,

(iii) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

14. (Withdrawn) A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

15. (Withdrawn) A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

16. (Withdrawn) A safety binding assembly according to claim 13, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

17. (Withdrawn) A safety binding assembly according to claim 13, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

18. (Withdrawn) A safety binding assembly according to claim 13, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component.

19. (Original) 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, wherein the safety binding includes a lower heel assembly attached to the ski and 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, comprising:

a tongue component having a first end and a second end, the first end being fixedly attached to a lateral release assembly and the second end being disposed between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

20. (Original) A safety binding assembly according to claim 19, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

REMARKS

This paper is responsive to the Office Action dated July 3, 2006. Claims 1-20 are pending in this application. Claims 1-18 have been withdrawn by election submitted on April 5, 2006. In the pending Office Action, the Examiner rejects claims 19 and 20. The Applicant respectfully traverses those rejections.

At paragraph 2 of the Office Action, the Examiner rejects claims 19 and 20 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,734,522 to Salomon ("Salomon"). In particular, the Examiner characterizes the rod 85 described in Salomon as teaching the tongue recited in claim 19. The Applicant respectfully disagrees with this characterization for at least the following reasons.

First, the tongue, as recited in claim 19 and described in the specification, requires a first end that is fixedly attached to a lateral release assembly. The Examiner points to reference number 85 (rod) of Salomon as corresponding to the tongue component, and to reference number 82 (longitudinal sliding guide) of Salomon as corresponding to the lateral release assembly in claim 19. The rod 85 of Solomon has a first end that is associated with the longitudinal sliding guide 82, but the first end of the rod 85 is not fixedly attached to the longitudinal sliding guide 82 as required by claim 19. Rather, the first end of the rod 85 slides through the longitudinal sliding guide 82, as described in Salomon in FIGs. 10 and 11 and at col. 8, line 28 through col. 9, line 17. The second end of the rod 85 is in constant contact with the rear face of the heel-piece, but is not fixedly attached to the heel-piece. Thus, neither end of the rod 85 is fixedly attached to anything.

Further, the second end of the rod 85 is not disposed between a first surface and a second surface, both of which are fixedly attached to the lower heel assembly. The Examiner points to reference number 80 (bracket) as corresponding to the lower heel assembly in claim 19. However, the Examiner does not identify exactly what in Salomon corresponds to the first and second surfaces of claim 19. Looking at figures 10 and 11 of Salomon (the figures that include reference numbers 80, 82 and 85), the Applicant cannot identify the two surfaces that the Examiner cites, both of which must be fixedly attached to the lower heel assembly (i.e., the bracket 80 as the Examiner asserts) to meet the requirements of claim 19. According to Salomon, the only surface that is fixedly attached to the bracket 80 is the ski 1 (see col. 8, line 29).

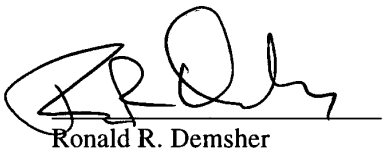
Also, Salomon does not teach the tongue component (rod 85) and the first and second surfaces cooperating to allow motion of the lateral release assembly (longitudinal sliding guide 82 as defined by the Examiner) to occur only in the longitudinal and horizontal plane of the ski, as required by claim 19. According to figures 10 and 11 of Salomon, the longitudinal sliding guide 82 is fixed, and merely limits the rod 85 to motion in one direction, in the direction of the double arrow 83 (see col. 8, lines 32-38). Further, the component identified as reference number 82 (longitudinal sliding guide) of Salomon does not function as a lateral release assembly, as the Examiner asserts.

For at least these reasons, Solomon does not teach all of the limitations of claim 19, so the Examiner's rejections are improper and should be withdrawn. Therefore claim 19 should be allowable. Since claim 20 depends from claim 19, that claim should also be allowable.

In view of the above remarks, applicant believes the pending application is in condition for allowance. Please apply any charges not covered, or any credits, to Deposit Account No. 08-0219.

Respectfully submitted,

Dated: July 25, 2006



Ronald R. Demsher
Registration No.: 42,478
Attorney for Applicant

Wilmer Cutler Pickering Hale and Dorr LLP
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Boston, Massachusetts 02109
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(617) 526-5000 (facsimile)

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10/780455 (10/780455)

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20=	* —
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐	RATE	FEE	OR	OTHER THAN SMALL ENTITY	RATE	FEE
	BASIC FEE	385.00	OR		BASIC FEE	770.00
	XS 9=		OR		XS18=	
	X43=		OR		X86=	
	+145=		OR		+290=	
	TOTAL	385	OR		TOTAL	

CLAIMS AS AMENDED - PART II 4-7-06

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
AMENDMENT A	Total	* 20	Minus	** 20	= —
	Independent	* 3	Minus	*** 3	= —
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY	RATE	ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY	RATE	ADDITIONAL FEE
	XS 9=	—	OR		XS18=	—
	X43=	—	OR		X86=	—
	+145=		OR		+290=	
	TOTAL ADDIT. FEE		OR		TOTAL ADDIT. FEE	—

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
AMENDMENT B	11/28/06				
	Total	* 20	Minus	** 20	=
	Independent	* 3	Minus	*** 3	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

	RATE	ADDITIONAL FEE	OR		RATE	ADDITIONAL FEE
	XS 9=		OR		XS18=	
	X43=		OR		X86=	
	+145=		OR		+290=	
	TOTAL ADDIT. FEE		OR		TOTAL ADDIT. FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
AMENDMENT C	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

	RATE	ADDITIONAL FEE	OR		RATE	ADDITIONAL FEE
	XS 9=		OR		XS18=	
	X43=		OR		X86=	
	+145=		OR		+290=	
	TOTAL ADDIT. FEE		OR		TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

FORM PTO-875 (Rev 10-03) — 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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

23483 7590 10/19/2006

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 10/19/2006

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/780,455	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 *28 July 2006*.

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) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19 and 20* 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 _____ 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) ☐ 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. Claims 19 and 20 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.

Applicant's recitation of "a lateral release assembly" in lines 4 and 7 is confusing because it suggests that applicant's invention contains two (2) lateral release assemblies. It is suggested that applicant amend claim 19, line 7 to recite --the lateral release assembly—for clarity.

For the purposes of examination, the claim will be treated as if "the lateral release assembly" was recited in line 7, since applicant's disclosure supports a single lateral release assembly.

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.

2. Claims 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Swenson (US Patent 4,070,034).

Swenson teaches, as best understood, a vector decoupling assembly for separating and isolating two or more force vectors applied to a safety binding/housing (10) securing a heel portion of a ski boot to a ski (12); the safety binding/housing (10) includes a lower heel assembly (14) attached to the ski (12) and an upper heel assembly (18-21) coupled to the lower heel assembly (14) and having a lateral release assembly (29, 30, 31, 32, 33--see column 1, lines 50-53 and column 4, lines 20-24) for applying lateral securing pressure to the ski boot (see boot heel 13 and Figure 3), including: a tongue component (31) having a first end and a second end, the first end being fixedly attached to the lateral release assembly (at element 30) and the second end being disposed between a first/upper surface (note the surfaces defined by the channel in binding/housing 10) fixedly attached to the lower heel assembly (14) and a second surface (note the surfaces defined by the channel in binding/housing 10) fixedly attached to the lower heel assembly (14), such that **the** tongue component (31), the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski (12). The tongue component (31), the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region (as clearly defined by the channel housing a portion of the tongue) within the longitudinal and horizontal plane of the ski (12).

Response to Arguments

3. Applicant's arguments with respect to claims 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 571-272-6691.

Avery

October 16, 2006

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/780,455	HOWELL, RICHARD J.
Examiner	**Art Unit**
Bridget Avery	3618

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	10/16/06
	1	N
	2	N
	3	N
	4	N
	5	N
	6	N
	7	N
	8	N
	9	N
	10	N
	11	N
	12	N
	13	N
	14	N
	15	N
	16	N
	17	N
	18	N
	19	√
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Claim		Date
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Claim		Date
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/780,455	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	10/12/2006	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

PTO/SB/21 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	10

Application Number	10/780,455-Conf. #1396
Filing Date	February 17, 2004
First Named Inventor	Richard J. HOWELL
Art Unit	3618
Examiner Name	B. D. Avery
Attorney Docket Number	0289630.00120US1

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
- [ ] Fee Attached
- [x] Amendment/Reply (9 pages)
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
- [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

POSTCARD

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WILMER CUTLER PICKERING HALE AND DORR LLP		
Signature			
Printed name	Ronald R. Demsher		
Date	January 4, 2007	Reg. No.	42,478

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: January 4, 2007 Signature: _____ (Maureen Divito)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: January 4, 2007 Signature: (Maureen Divito)

Docket No.: 0289630.00120US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	1396
Application No.:	10/780,455	Art Unit:	3618
Filed:	February 17, 2004	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL UNIT		

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

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated October 19, 2006, 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 8 of this paper.

US1DOCS 5997438v1

AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly coupled to the lower heel assembly, including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski;

(iii) a vector decoupling assembly for separating and isolating two or more force vectors applied to the safety binding assembly; and,

(iv) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

2. (Withdrawn) A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

3. (Withdrawn) A safety binding assembly according to claim 1, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

4. (Withdrawn) A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

5. (Withdrawn) A safety binding assembly according to claim 1, wherein the lower assembly includes a surface having six cams, three disposed on each side of the longitudinal and vertical plane of the ski.

6. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

7. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral heel biasing component includes

(i) a tension shaft having a first end and a second end, the first end of the tension shaft being pivotally attached to the lateral release assembly, and the second end of the tension shaft being adjustably attached to the lower heel assembly; and,

(ii) a spring coupled to the tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft.

8. (Withdrawn) A safety binding assembly according to claim 1, wherein the vector decoupling assembly includes a tongue component having a first end and a second end, the first end being fixedly attached to the lateral release assembly and the second end being disposed between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

9. (Withdrawn) A safety binding assembly according to claim 8, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

10. (Withdrawn) A safety binding assembly according to claim 1, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component.

11. (Withdrawn) A safety binding assembly according to claim 1, further including a contaminant blocking material disposed between the surface having the first plurality of cams and the surface having the second plurality of cams.

12. (Withdrawn) A safety binding assembly according to claim 1, further including a heel pad for reducing friction between a bottom surface of the heel portion of the ski boot and the safety binding assembly.

13. (Withdrawn) A safety binding assembly for securing a heel portion of a ski boot to a ski, comprising:

a lower heel assembly attached to the ski, the lower assembly including a surface having a first plurality of cams disposed on either side of a longitudinal and vertical plane of the ski; and

an upper heel assembly including

(i) a heel cup assembly for applying longitudinal securing pressure to the ski boot;

(ii) a lateral release assembly for applying lateral securing pressure to the ski boot, the lateral release assembly including a surface having a second plurality of cams, corresponding to and facing the first plurality of cams, disposed on either side of a longitudinal and vertical plane of the ski; and,

(iii) a lateral heel biasing component for biasing the surface having a second plurality of cams against the surface having a first plurality of cams;

wherein the lateral release assembly is constructed and arranged to pivot in a lateral and horizontal plane of the ski, against a force applied by the lateral heel biasing component, about any one of a plurality of cam axes each defined by a contact point of one of the first plurality of cams and one of the second plurality of cams, such that a lateral force applied to the heel portion of the ski boot in a direction perpendicular to the longitudinal and vertical plane of the ski causes the lateral release assembly to progressively pivot about consecutive cams, producing an incrementally increasing force opposing the lateral force applied to the heel portion of the ski boot, until the lateral release assembly rotates beyond a predetermined cam axis and releases the ski boot.

14. (Withdrawn) A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed symmetrically on either side of the longitudinal and vertical plane of the ski.

15. (Withdrawn) A safety binding assembly according to claim 13, wherein the first plurality of cams and the second plurality of cams are disposed asymmetrically on either side of the longitudinal and vertical plane of the ski.

16. (Withdrawn) A safety binding assembly according to claim 13, wherein the lower assembly includes a surface having four cams, two disposed on each side of the longitudinal and vertical plane of the ski.

17. (Withdrawn) A safety binding assembly according to claim 13, wherein the lateral heel biasing component includes

(i) a first tension shaft having a first end and a second end, and a second tension shaft having a first end and a second end, pivotally attached to one another at the first end of each tension shaft via a connector rod; and,

(ii) a spring coupled to the first tension shaft and the second tension shaft for resisting longitudinal movement of the first tension shaft and second tension shaft;

wherein the second end of the first tension shaft is pivotally attached to the lateral release assembly, and the second end of the second tension shaft is adjustably attached to the lower heel assembly.

18. (Withdrawn) A safety binding assembly according to claim 13, wherein the lateral release assembly progressively pivots about consecutive cams so as to produce a consecutive series of vector additions and subtractions with respect to the biasing of the lateral heel biasing component.

19. (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, wherein the safety binding includes a lower heel assembly attached to the ski and 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, comprising:

a tongue component having a first end and a second end, the first end being fixedly attached to [[a]]the lateral release assembly and the second end being disposed between a first surface fixedly attached to the lower heel assembly and a second surface fixedly attached to the lower heel assembly, such that the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski.

20. (Original) A safety binding assembly according to claim 19, wherein the tongue component, the first surface and the second surface cooperate to limit motion of the lateral release assembly to within a predetermined region within the longitudinal and horizontal plane of the ski.

REMARKS

Claims 1-20 are pending in this Application, of which claims 1-18 have been previously withdrawn from consideration. Claims 19 and 20 have been rejected.

At ¶1 of the Office Action, the Examiner rejects claims 19 and 20 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. As suggested by the Examiner, the Applicant amends claim 19 at line 7 to recite "the lateral release assembly" rather than "a lateral release assembly." This is clearly a typographical error – the claim makes no distinction to suggest two different lateral release assemblies. Further, the claim recitations with regard to "lateral heel assembly" are consistent with the disclosure as describing the same lateral heel assembly. Therefore as the Examiner suggests, this amendment is made for clarity.

At ¶2 of the Office Action, the Examiner rejects claims 19 and 20 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,070,034 (Swenson). The Applicant respectfully traverses this rejection for at least the following reasons.

Claim 19 requires that the lateral release assembly be part of the upper heel assembly.

> . . . wherein the safety binding includes a lower heel assembly attached to the ski and 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 . . . (emphasis added).

Thus, claim 19 recites that the upper heel assembly (i) be coupled to the lower heel assembly and (ii) has a lateral release assembly. Swenson does not teach or suggest an upper heel assembly that has a lateral release assembly.

On page 3 of the Office Action, the Examiner identifies reference numbers 29, 30, 31, 32 and 33 of figure 4 in Swenson as the lateral release assembly of claim 19. The Examiner further identifies reference numbers 18-21 of figure 6 in Swenson as the upper heel assembly of claim 19. Thus, the lateral release assembly of Swenson is not part of the upper heel assembly of Swenson, as required by claim 19. In fact, they are shown as separate, independent components of the Swenson adjustable release binding in figure 1 and figure 2. Since Swenson does not teach or suggest all of the limitations of claim 19, the rejection is improper and should be

withdrawn. Since claim 20 depends from allowable claim 19, that claim should also be allowable.

Further, claim 19 recites a tongue component and a lateral release assembly as two separate components, i.e.,

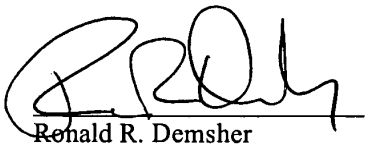
> . . . a tongue component having a first end and a second end, the first end being fixedly attached to the lateral release assembly . . .

In other words, claim 19 recites one component (a tongue component) that is attached to another component (a lateral release assembly). As described above, the Examiner identifies reference numbers 29, 30, 31, 32 and 33 of figure 4 in Swenson as the lateral release assembly of claim 19. The Examiner also identifies reference number 31 as the tongue component of claim 19. However, reference number 31 is a constituent of what the Examiner refers to as the lateral release assembly, and not a component separate from the lateral release assembly, as required by claim 19. For this additional reason, Swenson does not teach or suggest all of the limitations of claim 19, so the rejection is improper and should be withdrawn. Since claim 20 depends from allowable claim 19, claim 20 should also be allowable.

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

Respectfully submitted,

Dated: January 4, 2007



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)

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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.

PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/760455

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))							
SEARCH FEE (37 CFR 1.16(k), (i), or (m))							
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))							
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	x =		OR	x =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	x =			x =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

1.8.06

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x 25 =		OR	x 50 =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x 100 =		OR	x 200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

23483 7590 04/04/2007

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/04/2007	ELECTRONIC

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

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/04/2007.

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

teresa.carvalho@wilmerhale.com
tina.dougal@wilmerhale.com
michael.mathewson@wilmerhale.com

Office Action Summary	Application No.	Applicant(s)	
	10/780,455	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 *08 January 2007*.

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) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19 and 20* 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 _____ 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) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

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.

1. Claims 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Swenson (US Patent 4,070,034).

Swenson teaches, as best understood, 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 (12); the safety binding includes a lower heel assembly (14) attached to the ski (12) and an upper heel assembly (10) coupled to the lower heel assembly (14) and having a lateral release assembly (29, 30 --see column 1, lines 50-53 and column 4, lines 20-24) for applying lateral securing pressure to the ski boot (see boot heel 13 and Figure 3), including: a tongue component (31) having a first end and a second end, the first end being fixedly attached to the lateral release assembly (at element 30) and the second end being disposed between a first/upper surface (note the surfaces defined by the channel in the upper heel assembly 10) fixedly attached to the lower heel assembly (14) and a second surface (note the surfaces defined by the channel in the upper heel assembly 10) fixedly attached to the lower heel assembly (14), such that **the** tongue component (31), the first surface and the second surface cooperate to allow motion of the lateral release assembly (29, 30) to occur only in the

longitudinal and horizontal plane of the ski (12). The tongue component (31), the first surface and the second surface cooperate to limit motion of the lateral release assembly (29, 30) to within a predetermined region (as clearly defined by the channel formed in the upper heel assembly 10 housing a portion of the tongue 31) within the longitudinal and horizontal plane of the ski (12).

Response to Arguments

2. Applicant's arguments with respect to claims 19 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

3. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 571-272-6691.

Avery

March 26, 2007

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/780,455	HOWELL, RICHARD J.
Examiner	**Art Unit**
Bridget Avery	3618

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	3/26/07								
	1	N								
	2	N								
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination	
10/780,455	HOWELL, RICHARD J.	
Examiner	**Art Unit**	
Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	3/26/2007	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

A

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

23483 7590 09/21/2007

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 09/21/2007

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

TITLE OF INVENTION: ALPINE SKI BINDING HEEL UNIT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$700	$300	$0	$1000	12/21/2007

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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 09/21/2007

WILMER CUTLER PICKERING HALE AND DORR LLP
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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

TITLE OF INVENTION: ALPINE SKI BINDING HEEL UNIT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$700	$300	$0	$1000	12/21/2007

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 credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information 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.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BOSTON, MA 02109

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 09/21/2007

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

The Patent Term Adjustment to date is 341 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 341 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

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.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	10/780,455	HOWELL, RICHARD J.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- 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 *7/05/07*.

2. ☒ The allowed claim(s) is/are *19 and 20*.

3. ☐ 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 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ 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. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date attached
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other *See Continuation Sheet*.

EXAMINER'S AMENDMENT

1. 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.

2. The application has been amended as follows:

Claims 1-18 have been canceled.

Claims 1-18 are drawn to a non-elected invention. The election was made without traverse on April 7, 2006.

3. 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, Christopher Ellis can be reached on 571-272-6914. 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.

Avery
July 9, 2007

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Continuation Sheet (PTOL-37) **Application No. 10/780,455**

Continuation of Attachment(s) 9. Other: Drawings filed 8/23/04 are approved.

Interview Summary	**Application No.** 10/780,455	**Applicant(s)** HOWELL, RICHARD J.	
	Examiner Bridget Avery	**Art Unit** 3618	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Bridget Avery*. (3)_____.

(2) *Ron Demsher (Reg. No. 42,478)*. (4)_____.

Date of Interview: _____.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *19*.

Identification of prior art discussed: *Swenson (US Patent 4,070,034)*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant argued that Swenson ('034) failed to teach a first surface and a second surface fixed attached to a heel assembly that allow motion of a lateral release assembly to occur only in the longitudinal and horizontal plane. It was agreed that Swenson failed to teach limiting of the lateral release assembly in the longitudinal and horizontal plane because Swenson also allows release in the vertical plane (as shown in Figure 6).*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

_____
Examiner's signature, if required

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Bib Data Sheet

CONFIRMATION NO. 1396

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/780,455	02/17/2004 RULE	280	3618	289630.120 US1

APPLICANTS
Richard J. Howell, Stowe, VT;

**** CONTINUING DATA ***************************
This appln claims benefit of 60/448,645 02/18/2003

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 05/08/2004

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☑ yes ☐ no	VT	4	20	3
35 USC 119 (a-d) conditions met	☑ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature / Initials: BA				

ADDRESS
23483

TITLE
Alpine ski binding heel unit

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
385	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/780,455	HOWELL, RICHARD J.
	Examiner	Art Unit
	Bridget Avery	3618

ISSUE CLASSIFICATION

ORIGINAL CLASS	ORIGINAL SUBCLASS	CROSS REFERENCE(S) CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)
280	626	280	629

INTERNATIONAL CLASSIFICATION				
A	6	3	C	9/084
				/
				/
				/
				/

Bridget Avery
(Assistant Examiner) (Date)

Venice Williams 8-25-07
(Legal Instruments Examiner) (Date)

1/9/07
CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
(Primary Examiner) (Date)
TECHNOLOGY CENTER 3600

Total Claims Allowed: 2

O.G. Print Claim(s)	O.G. Print Fig.
1	1

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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	3		33		63		93		123		153		183
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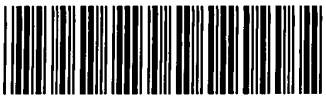
Search Notes



Application/Control No.	Applicant(s)/Patent under Reexamination	
10/780,455	HOWELL, RICHARD J.	
Examiner	**Art Unit**	
Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	7/5/2007	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
280	**625 628 631**	7/5/2007	**BA**
280	626 627	7/5/2007	BA

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Allowable subject matter discussed with Chris Ellis	7/5/2007	BA

PTO/SB/21 (04-07)
Approved for use through 09/30/2007. OMB 0651-0031
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	3

Application Number	10/780,455-Conf. #1396
Filing Date	February 17, 2004
First Named Inventor	Richard J. HOWELL
Art Unit	3618
Examiner Name	B. D. Avery
Attorney Docket Number	2003127.00122US1

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
- [ ] Fee Attached
- [ ] Amendment/Reply
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
- [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

Return Receipt Postcard

Interview Summary – 2 pages

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WILMER CUTLER PICKERING HALE AND DORR LLP		
Signature			
Printed name	Ronald R. Demsher		
Date	September 24, 2007	Reg. No.	42,478

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: September 24, 2007 Signature: _____ (Maureen Divito)

6373907
US1DOCS 6373907v1

Docket No.: 2003127.00122US1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Richard J. HOWELL	Confirmation No.:	1396
Application No.:	10/780,455	Art Unit:	3618
Filed:	February 17, 2004	Examiner:	B. D. Avery
Title:	ALPINE SKI BINDING HEEL UNIT		

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

INTERVIEW SUMMARY

Dear Sir:

Applicants thank Examiner Avery for the telephonic interview of July 3, 2007. Ronald R. Demsher represented Applicant in the interview.

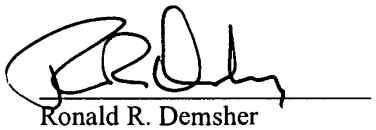
In the interview, Examiner Avery and Ronald Demsher discussed the rejections of claims 19 and 20 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,070,034 (Swenson). In particular, Examiner Avery and Mr. Demsher discussed components of the invention taught by Swenson, with respect to claims 19 and 20. Mr. Demsher explained that Swenson at least does not teach or suggest the limitation of ". . . the tongue component, the first surface and the second surface cooperate to allow motion of the lateral release assembly to occur only in the longitudinal and horizontal plane of the ski." The Examiner agreed with this explanation.

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. 2003127.00122US1 from which the undersigned is authorized to draw.

6311252
US1DOCS 6311252v1

Respectfully submitted,

Dated: September 24, 2007



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)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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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 09/21/2007

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

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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.
10/780,455	02/17/2004	Richard J. Howell	289630.120 US1	1396

TITLE OF INVENTION: ALPINE SKI BINDING HEEL UNIT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$700.	$300	$0	$1000	12/21/2007

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 Wilmer Cutler Pickering Hale and Dorr LLP
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: KneeBinding Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): 782 Mountain Road, Stowe, Vermont

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 credit any overpayment, to Deposit Account Number 08-0219 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date November 27, 2007

Typed or printed name Ronald Demsher Registration No. 42,478

This collection of information 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.

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Electronic Patent Application Fee Transmittal

Application Number:	10780455
Filing Date:	17-Feb-2004
Title of Invention:	ALPINE SKI BINDING HEEL UNIT
First Named Inventor/Applicant Name:	Richard J. Howell
Filer:	Ronald R. Demsher./Susannah Fernandez
Attorney Docket Number:	289630.120 US1
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	720	720
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1020**

Electronic Acknowledgement Receipt

EFS ID:	2512986
Application Number:	10780455
International Application Number:	
Confirmation Number:	1396
Title of Invention:	ALPINE SKI BINDING HEEL UNIT
First Named Inventor/Applicant Name:	Richard J. Howell
Customer Number:	23483
Filer:	Ronald R. Demsher./Susannah Fernandez
Filer Authorized By:	Ronald R. Demsher.
Attorney Docket Number:	289630.120 US1
Receipt Date:	27-NOV-2007
Filing Date:	17-FEB-2004
Time Stamp:	14:55:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1020
RAM confirmation Number	236
Deposit Account	080219
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1	Issue Fee Payment (PTO-85B)	2003127_122US1_issuefee.pdf	144767 e27fe8d7cea901a4b55e525e2e9fe4b91038b8b5	no	1
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Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8282 25e6180073149c34a83c93bb4938691a273082e5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	153049		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,455	01/15/2008	7318598	289630.120 US1	1396

23483 7590 12/26/2007

WILMERHALE/BOSTON
60 STATE STREET
BOSTON, MA 02109

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 341 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

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 (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Richard J. Howell, Stowe, VT;

IR103 (Rev. 11/05)