

[54] **TENSION ADJUSTABLE RELEASABLE
SKI BINDING AND METHOD**
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[52] **U.S. Cl.****280/11.35 T**
[51] **Int. Cl.**.....**A63c 9/00**
[58] **Field of Search**.....**280/11.35 T**

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Assistant Examiner—Robert R. Song
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[57] **ABSTRACT**
The present invention relates to releasable ski bindings for retaining boots to skis during normal skiing and releasing the boots from the skis under abnormal conditions. Forward and rear boot mounts cooperate with forward and rear ski mounts through a multiple action toggle at the rear ski mount to permit lateral heel release from beneath the toggle against the forward resilient force but heel roll out and vertical release are enabled through toggling of the toggle means upwardly and backwardly. Momentum or decelerating release is facilitated through telescoping the forward boot mount into the forward ski mount against the resilient force.

11 Claims, 16 Drawing Figures

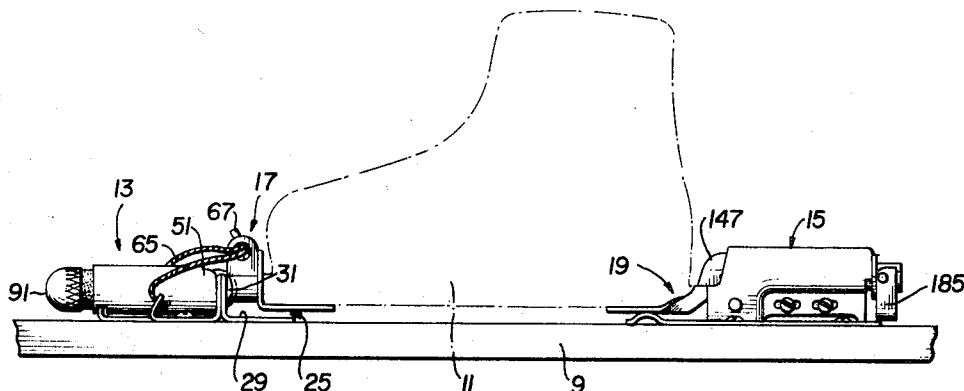


FIG. 1

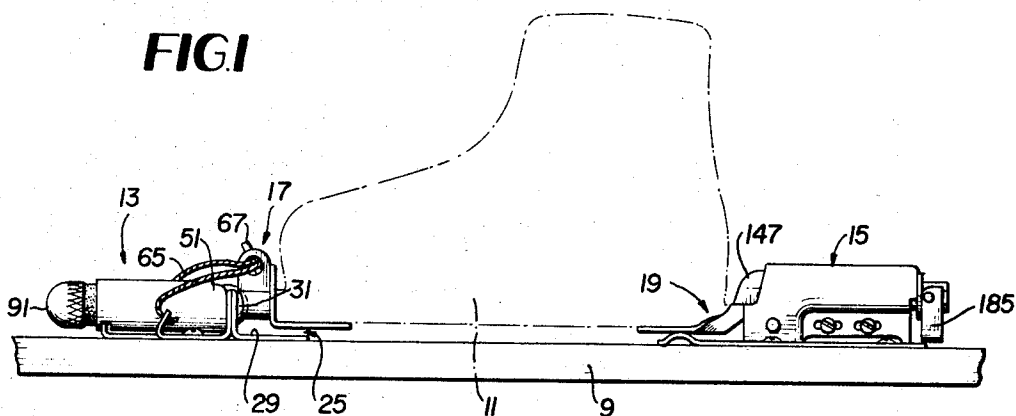


FIG. 2

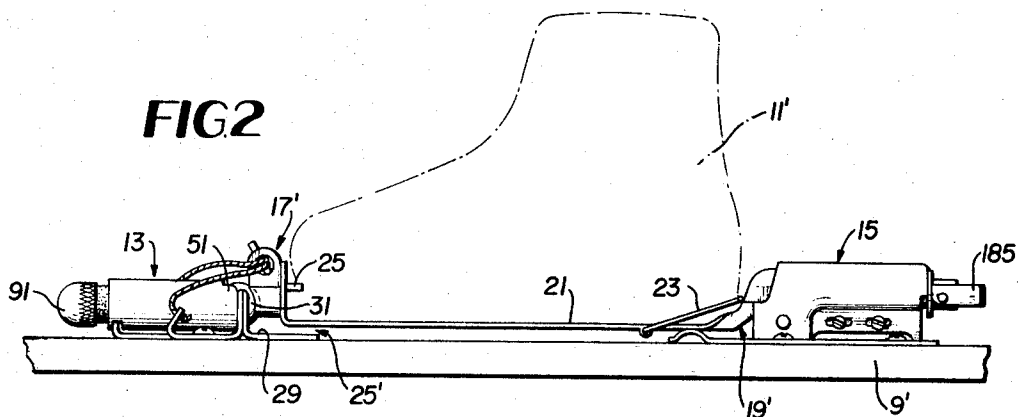


FIG. 8

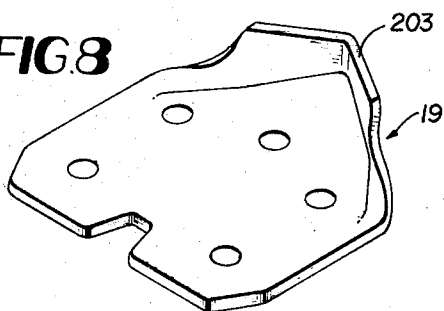


FIG. 9

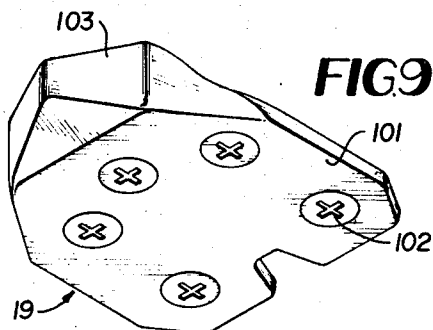
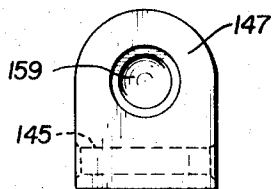


FIG. 16



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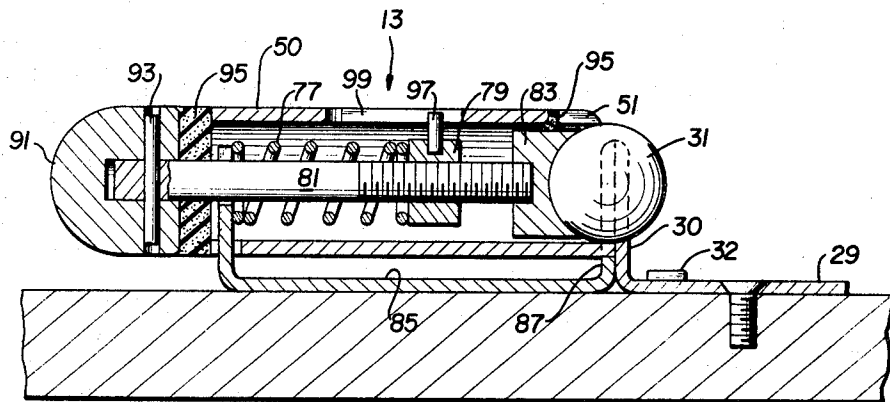
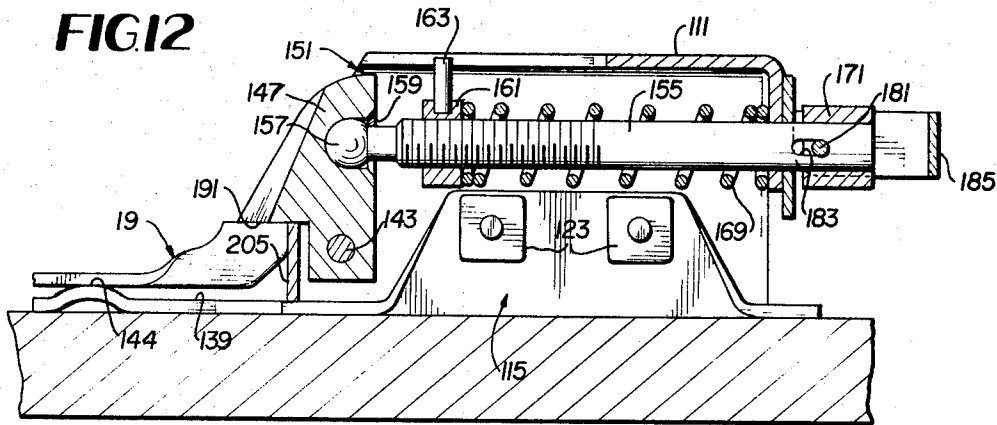


FIG 4

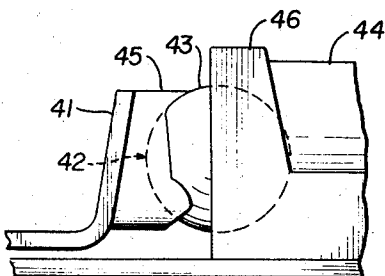


FIG 3
PRIOR ART

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FIG 10

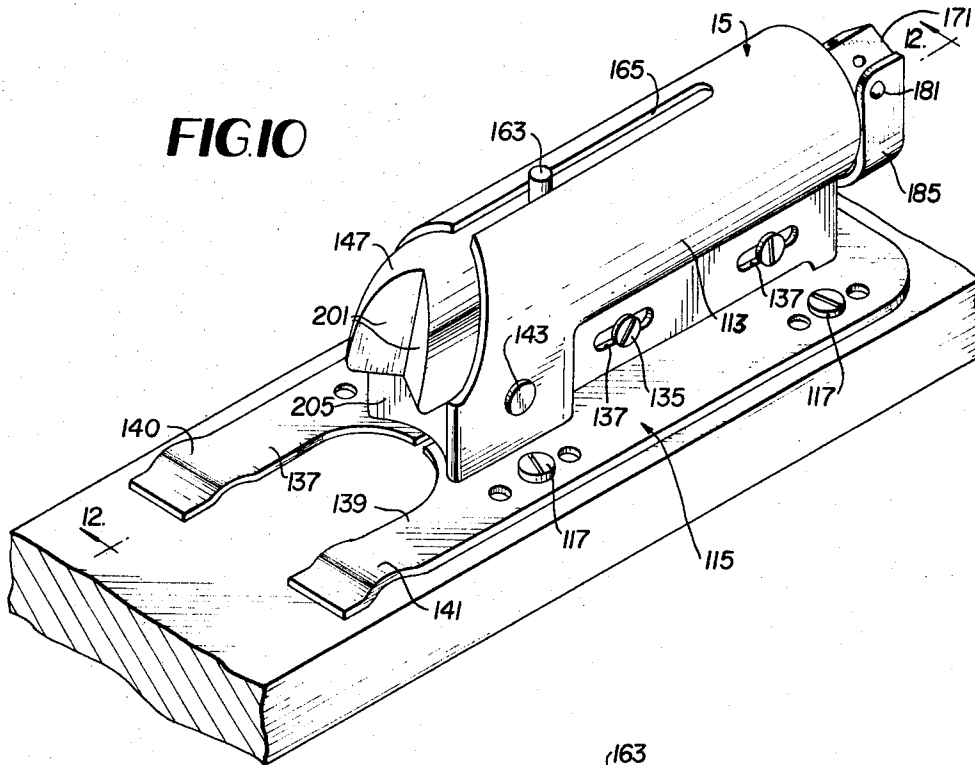


FIG 11

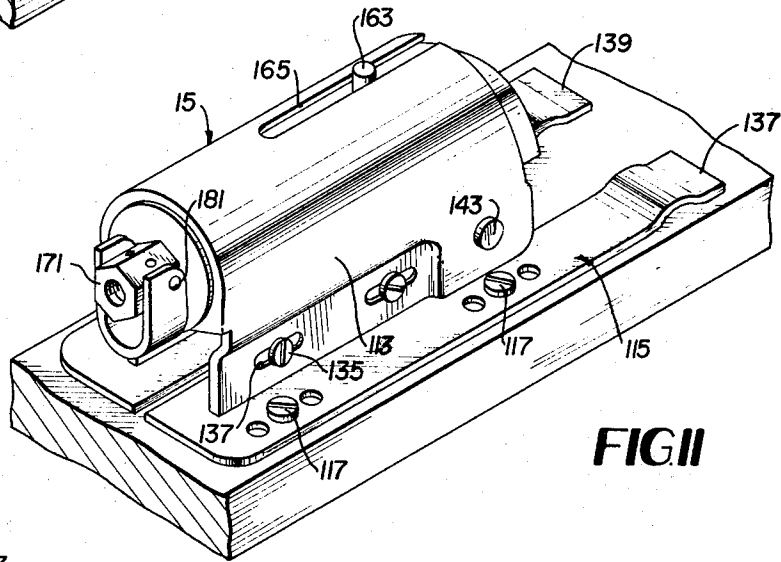
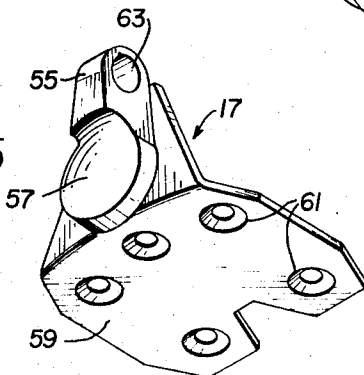


FIG 5



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FIG13

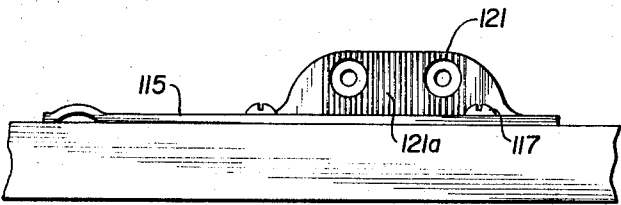


FIG14

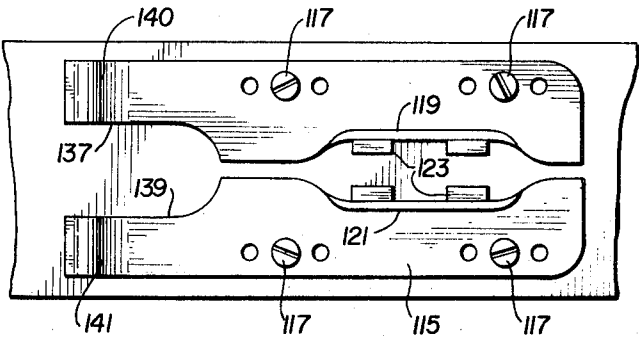


FIG15

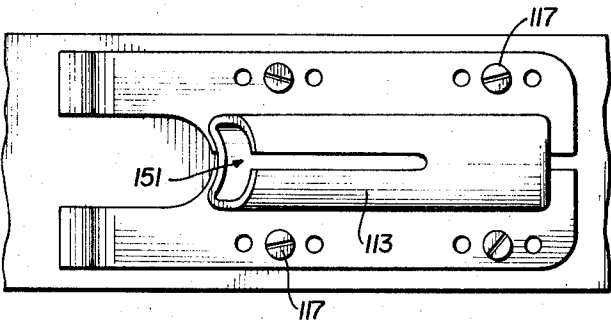


FIG6

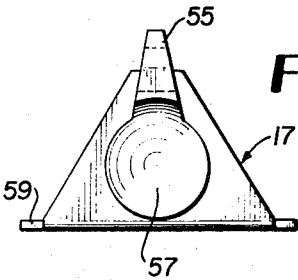
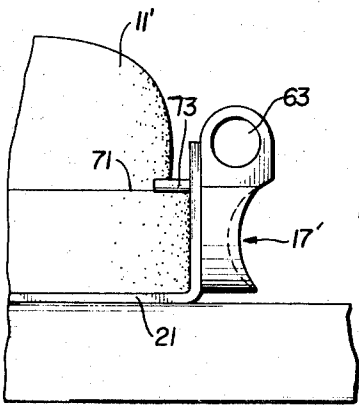


FIG7



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TENSION ADJUSTABLE RELEASABLE SKI BINDING AND METHOD

The present invention relates to a unique heel release and to such a release in combination with a toe release of a type capable of developing a rearwardly effective biasing force at least during release or in combination with a unique type of telescoping toe release.

The heel release comprises a rear ski mount which includes a first surface preferably complementary to a first surface of the rear boot mount. These surfaces generally extend transversely of the ski and vertically engage each other. They may be merely maintained in contact by a close fit between the respective mounts or actually biased into contact through the force of the forward spring biasing means of the forward ski mount acting against the forward boot mount. These surfaces are preferably angularly related to the midline of the ski such that some forward movement is required for a direct lateral heel release.

The rear boot and rear ski mount provide, respectively a second set of surfaces for contact which control the other types of heel release, i.e., roll out and vertical. These surfaces are generally parallel to the ski and normally extend horizontally with some overlap. The surface of the rear ski mount is incorporated in a toggle which may be moved against a resilient biasing spring of the rear ski mount to relieve the overlap to permit the vertical and roll out heel releases. In this regard the term toggle is meant to denote a movable body effective to normally latch the rear ski boot mount against vertical displacement.

In a preferred embodiment, the cooperating forward ski mount is recessed or relieved such that the forward boot mount may actually enter or at least partially enter, in a telescoping manner, the forward ski mount, particularly in the case of a momentum or decelerating type fall to insure that the overlap at the heel is completely relieved.

In the above combination, a feature of the invention resides in the fact that the forward boot mount may be supported by the forward ski mount to maintain a slight gap between the toe of the boot and the ski. The rear ski mount includes a pair of widely spaced apart point or area contacts defining a line or plane which cooperates with the forward point contact fixedly to locate the boot relative to the ski. These two point contacts also serve as bearing surfaces for the rear boot mount in rolling off of the ski.

With the foregoing in mind, among the objects of the invention are the provision of a multi-angle release binding including a momentum or deceleration provision for release.

Another object is apparatus providing for a reduction of friction build up affecting release levels, with such causes of friction build up being due to body attitudes assumed during falling. Also, icing, freezing, restriction from particulate matter (sand) may comprise causes for frictional build up.

Next, the apparatus has as an object the provision of a binding in which the pressures required for various release mounts are more properly related to each other than is generally now found in present state of the art developments.

A further object is the provision of a binding that is easy to enter and exit from voluntarily.

Another object is the provision of apparatus for relating lateral toe and heel release requirements to the same biasing force and for relating vertical toe and heel releases to different biasing forces.

Yet further objects include a new heel release, per se, and in combination with a new telescoping toe release, per se.

The invention will better be understood from a reading of the following detailed description thereof, when taken in the light of the accompanying drawings wherein:

FIG. 1 is a view in side elevation of the preferred embodiment of the invention;

FIG. 2 is a view in side elevation of a different embodiment of the invention;

FIG. 3 is a fragmentary view illustrating a portion of forward mounting means in cooperative relation and representative of the prior art;

FIG. 4 is a view in cross-section of the forward ski mounting assembly;

FIG. 5 is a view in perspective of the forward or toe boot mounting structure;

FIG. 6 is a front view of the structure of FIG. 5;

FIG. 7 is a view in side elevation of structure corresponding to that of FIG. 5 but including a modification for use in the mounting arrangement of FIG. 2;

FIG. 8 is a view in perspective of the boot heel mounting means taken from the top thereof;

FIG. 9 is a view in perspective of the boot heel mounting means taken from the bottom thereof;

FIG. 10 is a front perspective view of the rear ski mounting means;

FIG. 11 is a rear perspective view of the rear ski mounting means;

FIG. 12 is a view in cross-section of the structure of FIGS. 10 and 11;

FIG. 13 is a view in side elevation of the lower portion of the rear ski mounting means;

FIG. 14 is a view in plan of the structure of FIG. 13;

FIG. 15 is a view in plan showing the upper portion of the rear of the ski mounting means assembled to the lower portion thereof;

FIG. 16 is a rear view of the toggle component of the rear ski mounting means of FIGS. 10 and 11.

In FIG. 1 a ski boot 11 is shown in phantom outline between a forward ski mount assembly 13 and a rear ski mount assembly 15. The boot 11 is releasably connected to the forward ski mount assembly 13 through the provision of a forward or boot toe plate assembly 17 and to the rear ski assembly 15 by rear boot or heel plate assembly 19. The forward and rear boot attachments are screwed or otherwise connected to or made integrally with the boot 11.

However, in FIG. 2 an alternative arrangement permits the same ski assemblies 13 and 15 to receive a boot 11' equipped with a full length plate 21 which carries a forward boot or toe assembly 17' quite similar to the assembly 17 and a rear boot assembly 19' also similar to the assembly 19. However, the plate is clamped or attached to the boot 11' by the heel cable 23 in cooperation with the forward toe rim 25 in releasably securing the plate 21 to the boot 11'. Alternatively, of course, the plate 21 can be screwed to the boot 11' but such permanent type connection is awkward for the skier when walking. When using the heel

cable 23 approach, the skier may leave plate 21 attached to the ski and exit by releasing heel cable 23 and slipping his toe from beneath rim 25.

It should also be pointed out that two gaps or spaces provide desirable functional features for the invention. The first is the space 25 between the bottom of the toe plate assembly 17 and the top of the forward mount assembly 13 or ski 9. The gap insures that the forward end of the boot 11 or 11' remains slightly out of contact with the toe mounting plate 29, as occasioned by the upwardly urging force of the biased ball 31 of forward ski assembly 13 to minimize friction between the boot and ski for ready release.

The other gap is the slight longitudinal spacing between the ski mounting structure for ball 31 and toe assembly 17 or 17'. Momentum or decelerating release is facilitated through telescoping the forward boot mount assembly 17 or 17' into the forward ski mount 13, and this longitudinal gap is provided to initiate heel release with very little penetration required. Recessed portion 32 is adjacent a slot (not shown) to provide a pivot connection for the tip of the skier's pole when he desires to exert upward pressure against ball 31 voluntarily to exit from the skis.

In FIG. 3 there is shown a forward toe-ski mount connecting assembly wherein the forward boot extension 41 includes a semi-recess 42 into which the forward ball 43 is biased from the tube 44. Flange 45 extends forwardly from recess 42 to permit the forward end of the boot to be biased upwardly by ball 43 to maintain a space, similar to space 25 mentioned in connection with FIGS. 1 and 2. Actually this space or gap, being of a minimal nature, is closed from time to time due to the weight of the skier, vertical momentum, etc. However, it should be noted that the rim 46 is not cut out to permit the toe attachment to telescope into tube 44.

Such relieving is found in the tube 50 of assembly 13 of the present invention, as is best seen in FIG. 4 at 51. This is the open-ended slot which receives the head 55 (FIGS. 5 and 6) of the toe assembly 17. Also, in these figures, the socket 57 of the forward toe assembly is clearly visible and the plate portion 59 is seen provided with the apertures, such as 61, for receiving screws to fasten the assembly 17 to the boot. Aperture 63 of the toe assembly is provided to receive the safety cord or thong 65 (FIG. 1) which carries a stud 67 that is longitudinally slipped through hole 63 and then turned at right angles thereto. This thong prevents the ski from escaping from the skier in the event of disconnection of the mounting means. Obviously, the same principles may obtain whether or not the assembly 17, as well as the heel assembly 19, are formed integrally with the boot or attached thereto and it is intended that the present invention encompass both arrangements.

In FIG. 7 there is shown the modified assembly 17' in closer detail to show the manner of accommodating the plate 21 at the toe by gripping the boot sole 71 between the horizontal surface of the plate 21 and a horizontal spur or rim 73. The rim 73 preferably is slightly arcuate to conform to the wall across the toe of the boot. This arrangement may also be employed with the toe assembly 17 of FIG. 1, but it is not necessary.

In the cross section of FIG. 4, the biasing arrangement for the forward ski mount 13 is depicted. The

plate 29 carries an upriser 30 which is slotted from the top in circular form to permit less than one-half of the ball 31 to protrude therethrough. In other words, the semi-aperture of upriser 30 sets the rearward (toward the skier) limitation of movement of ball 31 due to the resilient force of spring 77 urging the keyed nut 79 and consequently spring rod 81 carrying ball cup 83 to the right in FIG. 4.

The forward portion of mount 13 comprises U-shaped plate 85 which includes a rear upriser plate 87 having a communicating semi-aperture with the aperture of upriser 30. However, the upriser of aperture 87 is large enough to permit the diameter of ball 31 to pass therethrough. Thus, this combined structure provides a ready seat or locating means for ball 31 without the necessity of complicated machining. Obviously plates 85 and 29 could be from the same piece of material and the ball socket machined therefrom.

The resistance of ball 31 to forces endeavoring to push it back into the tube 50 is adjustable by rotating knob 91 which is pinned to shaft 81 by pin 93 and which is spaced from tube 50 by expandable-compressible material 95, such as sponge or rubber.

Thus, rotation of knob 91 in one direction compresses spring 77 because the upper projection 97 of threaded nut 79 rides in slot 99. Contrariwise, rotation of knob 91 in the opposite direction relieves some of the compression of spring 77.

The opposite end of the boot 11 is equipped with the heel plate assembly 19 which includes a flat plate portion 101 for attachment to the heel of boot 11 by screws 102 and a generally arcuate and beveled rear extension 103.

Extension 103 of the heel assembly 19 is adapted to cooperate with the rear ski boot assembly 15, best seen in FIGS. 10, 11, and 12. A heel case 113 which may comprise a steel stamping, preferably cadmium coated, comprises basically upper housing 113 (FIG. 15) and lower mounting plate 115. The mounting plate 115 is adjustably connected to the ski by coarse adjustment screws 117 and includes uprisers 119 and 121 which are externally serrated, as at 121a along their outer surfaces to frictionally receive corresponding serrations on the respective inner surfaces of housing 113. Nuts, such as 123, are welded within the uprisers to receive bolts 135, adjustably positionable in slots 137, for fine longitudinal adjustment.

The rear ski mount plate 115 is in two pieces and includes forwardly extending legs 137 and 139 with raised bearing surfaces 140 and 141.

The housing 113 includes a pivot pin 143 which passes through an aperture 145 in toggle 147. The toggle 147 may move along a limited arc path extending vertically upward and rearward or vice versa, relative to the ski, in the vicinity of the mouth 151 of the housing 113. A threaded spring rod 155 includes a circular head 157 (FIG. 12) adapted to fit into a beveled circular recess 159 in toggle 147. A keyed nut 161 may be caused to travel longitudinally of the threaded spring rod 155 because the key 163 travels in upper slot 165 of housing 113 when threaded spring rod 155 is turned. The rear biasing spring 169 is carried inside housing 113 on shaft 155, and a toggle vertical adjusting nut 171 may draw more or less of threaded spring rod 155 externally of housing 113 which compresses or relieves

the tension of spring 159, but primarily it is moved to control the forward extension of head 157 of rod 155, thereby limiting the vertical elevation of toggle 147. A locking pin 181 is provided for nut 171, and it may extend through the nut from any face to its opposite face and is contained in slot 183. This pin 181 provides a pivot for camming lever 185 which is provided to draw the threaded bolt 155 to the rear when it is pivoted into the horizontal or longitudinal position. This draws head 157 away from beveled recess 159 to permit toggle 147 to raise its contacting surface 191 sufficiently to enable the beveled plate extension 103 of the rear boot mounting means 19 to be freely or easily slipped therebeneath.

This feature is particularly useful when ice forms on the ski or the heel boot plate as it permits leeway to enable the extension 103 to be located under surface 191 of toggle 147.

Normally, in the absence of ice, the skier in entering the mount simply locates the forward assemblies in engaging relation and places his weight on his heels which causes the extension 103 of the rear boot mount assembly 19 to slide downwardly along the camming surface 201 of toggle 147. This surface can toggle against spring 169 rearwardly and can toggle upwardly until its surface 191 accommodates and abuts the upper edge 203 of extension 103.

When in mounted position, the rear extension 103 is also in contact with the vertical and preferably slightly inwardly shaped surface 205 of the upper housing 113.

Thus, it may be seen that rearward vertical surfaces of extension 103 are preferably substantially complementary to the vertical surfaces 205, and this mating arrangement prevents lateral displacement of the heel until the requisite time. When the fall or unbalancing forces are such that the skier's heel is twisted laterally, the forward spring 77 is compressed and extension 103 may move out laterally. Of course, it should be borne in mind that extension 103 may move out vertically or may roll out depending upon the type forces active on the skier and the engaging and camming surfaces just described uniquely enable the universal exit provided by this binding.

In use, the tensions of both the forward and rear springs are adjusted according to the individual's weight. Predetermined tables may be used, in conjunction with a spring pressure gauge or the following rules may be followed:

1. a snug fit is required between the skier with his attachments relative to the ski mounts, and this fitting is initially adjusted by longitudinally moving either or both of the ski mounts and, then, firming the tension through adjustments of the springs;

2. the forward spring is adjusted to maintain the two minimal gaps described; and,

3. the rear spring is adjusted to permit entry by heel weight but refuse release by the skier in attempting to jump vertically with emphasis at the heel or to twist or roll out at the heel.

Thus, it may now be appreciated that in the subject invention, lateral and momentum heel release are resisted by toe spring pressure and vertical and roll out heel release are resisted by heel spring pressure. Roll out heel release is affected to a minor degree by the toe spring.

What is claimed is:

1. A releasable ski binding for retaining a boot to a ski during normal skiing and releasing the boot from the ski under abnormal conditions of a type including a forward ski mount normally in engagement with a forward boot mount and exerting a rearwardly directed biasing force at least during release, the combination comprising rear ski mount means, rear boot mount means for normal engagement with the rear ski mount means; said rear ski and boot mount means respectively comprising first surfaces in engagement and at least retained against disengagement by the rearwardly directed biasing force of the forward ski mount to prevent lateral shear release of the rear boot mount means, biasing means at the rear ski mount means, said first surfaces being complementary, extending substantially vertical relative to the ski, oriented generally transversely thereof and angularly related to a midline of the rear ski mount means, and said rear ski and boot mount means comprising respectively second surfaces in predetermined abutting relation and at least retained against disengagement by the biasing means of the rear ski mount means to prevent other modes of rear boot mount means release.

2. The ski binding of claim 1 wherein the second surfaces are oriented generally parallel to the ski and comprise substantially horizontal surfaces, including an overlap region.

3. A releasable ski binding for retaining a boot to a ski during normal skiing and releasing the boot from the ski under abnormal conditions of a type including a forward ski mount normally in engagement with a forward boot mount and exerting a rearwardly directed biasing force at least during release, the combination comprising rear ski mount means, rear boot mount means for normal engagement with the rear ski mount means; said rear ski and boot mount means respectively comprising first surfaces in engagement and at least retained against disengagement by the rearwardly directed biasing force of the forward ski mount to prevent lateral shear release of the rear boot mount means, biasing means at the rear ski mount means, said rear ski and boot mount means comprising respectively second surfaces in predetermined abutting relation and at least retained against disengagement by the biasing means of the rear ski mount means to prevent other modes of rear boot mount means release, toggle means incorporating the respective second surface of the rear ski mount means, and said toggle means being adapted to be moved during modes of rear boot mount means release other than lateral shear release.

4. A releasable ski binding for retaining a boot to a ski during normal skiing and releasing the boot from the ski under abnormal conditions of a type including a forward ski mount normally in engagement with a forward boot mount and exerting a rearwardly directed biasing force at least during release, the combination comprising rear ski mount means, rear boot mount means for normal engagement with the rear ski mount means; said rear ski and boot mount means respectively comprising first surfaces in engagement and at least retained against disengagement by the rearwardly directed biasing force of the forward ski mount to prevent lateral shear release of the rear boot mount means, biasing means at the rear ski mount means, said rear ski and boot mount means comprising respectively second surfaces in predetermined abutting relation and

at least retained against disengagement by the biasing means of the rear ski mount means to prevent other modes of rear boot mount means release, said rear ski mount means comprising a second surface actually comprises a toggle member pivotally connected to the rear ski mount means for arc-like movement relative to the ski, and said toggle member further comprising a guideway generally directed at a forward slope toward the ski to guide the rear boot mount means into the ski binding.

5. A releasable ski binding for retaining a boot to a ski during normal skiing and releasing the boot from the ski under abnormal conditions of a type including a forward ski mount normally in engagement with a forward boot mount and exerting a rearwardly directed biasing force at least during release, the combination comprising rear ski mount means, rear boot mount means for normal engagement with the rear ski mount means; said rear ski and boot mount means respectively comprising first surfaces in engagement and at least retained against disengagement by the rearwardly directed biasing force of the forward ski mount to prevent lateral shear release of the rear boot mount means, biasing means at the rear ski mount means, said rear ski and boot mount means comprising respectively second surfaces in predetermined abutting relation and at least retained against disengagement by the biasing means of the rear ski mount means to prevent other modes of rear boot mount means release, a toggle incorporating the second surface of said rear ski mount means, said biasing means of the rear ski mount means opposing pivotal movement of the toggle in at least one direction; and further comprising camming means effective to relieve a portion of the biasing means force to permit freer movement of the toggle in said one direction to facilitate entry into the ski binding.

6. A releasable ski binding for retaining a boot to a ski during normal skiing and releasing the boot from the ski under abnormal conditions of the type including a forward ski mount normally exerting a rearwardly directed biasing force against a forward boot mount, the combination comprising rear ski mount means, rear boot mount means for normal engagement with the rear ski mount means; said rear ski and boot mount means respectively comprising first complementary surfaces biased into engagement, at least during release, by the rearwardly directed biasing force of the forward ski mount normally to prevent rear boot mount means forward disengagement and/or lateral shear release; biasing means at the rear ski mount means; said rear ski and boot mount means comprising respectively second surfaces normally maintained in engagement by the biasing means of the rear ski mount means to prevent other modes of release of the rear boot mount means; and said rear ski mount means comprising toggle means incorporating the second surface of the rear ski mount means adapted to be raised against the force of the biasing means of the rear ski mount means during said other modes of release.

7. The binding of claim 6 wherein said forward ski mount comprises ball means biased rearwardly of the ski and ball supporting means; said forward boot mount comprises an extension for gripping the ball means at least along a portion of its top surface; and said ball supporting means being open to receive said extension

in a telescoping manner when the forward boot mount is thrust forwardly.

8. A releasable ski binding for releasing a skier's boot from a ski at a predetermined release pressure, comprising in combination spaced apart forward and rear ski mounts, forward and rear boot mounts cooperating with the forward and rear ski mounts in retaining the boot to the ski and in releasing the boot from the ski, said rear boot mount and said rear ski mount comprising releasably engageable means, said rear ski mount including movable biasing means comprising spring means and toggle means for normally preventing both singly, and in combination, vertical or roll out disengagement of said engageable means, said forward boot mount comprising coacting means, said forward ski mount comprising means for engaging said coacting means, said forward ski mount comprising biasing means for biasing said means for engaging into contact with said coacting means, one of said coacting means and means for engaging having extending means for engagement with the other thereof to locate the boot toe and forward boot mount out of contact with the ski and out of further contact with the forward ski mount; and said forward ski mount biasing means maintaining the normal engagement of said releasably engageable means whereby lateral or forward disengagement of the rear boot mount from the rear ski mount is attained by overcoming the biasing force of said forward ski mount biasing means.

9. A releasable ski binding for releasing a skier's boot from a ski at a predetermined release pressure, comprising in combination spaced apart forward and rear ski mounts, forward and rear boot mounts cooperating with the forward and rear ski mounts in retaining the boot to the ski and in releasing the boot from the ski, said rear boot mount and said rear ski mount respectively including cooperating releasably engageable shaped mating surfaces extending generally vertically of the ski, and including portions on opposite sides of the midline of the rear ski mount that extend generally laterally outwards and forwardly thereof, said rear ski mount further including movable latching means for engaging said rear boot mount and biased to normally prevent both singly and in combination, vertical or roll out disengagement of said mating surfaces, said forward boot mount comprising coacting means, said forward ski mount comprising means for engaging said coacting means, said forward ski mount comprising biasing means for biasing said means for engaging into contact with said coacting means, one of said coacting means and means for engaging having extending means for engagement with the other thereof to locate the boot toe and forward boot mount out of contact with the ski and out of further contact with the forward ski mount, said forward ski mount biasing means maintaining the normal engagement of said releasably engageable means whereby lateral or forward disengagement of the rear boot mount from the rear ski mount is attained by overcoming the biasing force of said forward ski mount biasing means, said coacting means having extending means for engagement with said means for engaging to locate the boot toe and forward boot mount out of contact with the ski and out of further contact with said forward ski mount, said forward ski mount biasing means maintaining the normal engagement of

said mating surfaces whereby lateral or forward disengagement of the rear boot mount from the rear ski mount is attained by overcoming the biasing force of said forward ski mount biasing means, said forward ski mount including a housing movably accommodating said means for engaging and said housing having a recess accommodating at least partial entry of said extending means when said means for engaging are retracted in the direction of the forward ski mount means against the force of the biasing means of the forward ski mount during rear boot mount releases not requiring movement of said movable biasing means.

10. A releasable ski binding for releasing a skier's boot from a ski at a predetermined release pressure, comprising in combination spaced apart forward and rear ski mounts, forward and rear boot mounts, cooperating with the forward and rear ski mounts in retaining the boot to the ski and in releasing the boot from the ski, said rear boot mount comprising a shaped heel plate member including a base portion for attachment to the undersurface of the heel of a boot and an upstanding rear wall-forming extension including rearwardly facing converging vertical outer wall surfaces meeting at a vertical apex surface at the longitudinal midline of the base, at least the rearmost portions of said extension having horizontal upper surfaces, said rear ski mount including a housing including a top wall, opposite depending side wall portions, a depending rear wall portion and a partial vertical front wall portion extending upwardly from and between the lower portions of said side wall portions and terminating in an upper edge so as to delimit a front opening in the housing beneath said top wall, said partial vertical front wall portion having forwardly facing diverging outer wall surfaces to mate with said converging outer wall surfaces of said rear wall forming extension of said heel plate member, said top wall having an open ended slot therein extending rearwardly from the front of said housing, said depending rear wall portion having an opening therein, a shaped rear boot mount latching member, horizontally disposed pivot means for supporting said member, said pivot means being disposed between said side wall forming rearwardly of said partial front wall portion of said housing and below said upper edge thereof, said latching member having a rear thrust rod accommodating surface and a forwardly extending upper nose portion, said nose portion protruding through said front opening of said housing, said nose portion having a flat under surface adapted in ski binding condition to overlap said horizontal upper surfaces of said upstanding rear wall-forming extension of said heel plate member, a thrust rod disposed through the opening in the rear wall portion of said housing and rotatably engaging said rear thrust rod accommodating surface of said latching member, said thrust rod having an externally threaded portion thereon, a thrust nut adjustably engaged on said externally threaded portion, key means carried by said thrust nut and disposed in said slot in said top wall of said housing to constrain said thrust nut for axial movement along said thrust rod responsive to turning thereof, spring means biased between said thrust nut and said rear wall portion of said housing to urge said thrust member and thus said latching member forwardly into heel plate extension engaging relation to normally prevent both singly and

in combination, vertical or roll out disengagement of said converging and diverging mating vertical wall surfaces, means for turning said thrust rod to adjustably position said thrust receiving nut therealong to vary the biasing force of said spring, means cooperably related with said thrust rod for retracting the same against the action of said spring means to swing said latch member rearwardly to disengage said heel plate extension, the upper surface of said nose portion of said latching member having a downward and forwardly extending guideway therein to permit step-in entry of a ski boot with said rearward extension of said heel plate engaging said guideway to pivot the same rearwardly to move the under surface of said nose portion upwardly to permit said rearward extension of said heel plate to fit therebeneath, said forward boot mount including a shaped toe plate having a base and an upstanding front wall portion, said front wall portion having a projection extending forwardly thereof, said projection including a rearward thrust-applying member accommodating surface and an upper nose portion extending forwardly of said thrust-applying member accommodating surface, said upper nose portion having a shaped under surface to receive a component of thrust exerted rearwardly and upwardly by such a thrust-applying member, said forward ski mount comprising a housing means including a top wall having a slot therein in at least a portion intermediate the longitudinal extent thereof, said top wall also having a recess at the rear end thereof accommodating at least partial entry of said upper nose portion of said projection of said front wall portion of said toe plate, a thrust-applying member movably disposed in said housing, means at the rear end of said housing permitting said thrust-applying member to project therefrom but omitting the rearward movement thereof, a turnable rod within said housing extending longitudinally rearwardly therein and having an externally threaded portion, a thrust receiving nut threaded on said rod, key means on said nut and engaged in said slot in said top wall of said forward ski mount housing to constrain said thrust receiving nut for axial movement along said rod responsive to turning thereof, means for turning said rod to adjustably position said thrust receiving nut therealong, a head on said rod for engaging said thrust-applying member, an abutment means at the forward end of said housing, a spring means biased between said abutment means and said thrust nut for normally urging said rod and head rearwardly to urge said thrust-applying member rearwardly of said housing into engaging relation with said thrust-applying member accommodating surface of said projection of said toe plate as well as engagement with said under surface of said nose portion of said projection to normally maintain a boot toe and said toe plate out of contact with the ski and out of further contact with said forward ski mount, said spring means in said forward ski mount housing maintaining normal engagement of said respective converging and diverging mating vertical wall surfaces of said heel plate and rear ski mount respectively whereby lateral or forward disengagement of the rear boot mount from the rear ski mount is attained by overcoming the biasing force of said spring means in said forward ski mount housing, and said recess at the rear end of the top wall of said forward ski mount housing accommodating at least partial entry of

said upper nose portion of said forward projection of said front wall portion of said toe plate when said thrust-applying member is retracted in the forward direction of the ski against the biasing force of said last mentioned spring means in rear mount releases not requiring movement of said latching member of said rear ski mount.

11. A releasable ski binding for releasing a skier's boot from a ski at a predetermined release pressure, comprising in combination spaced apart forward and rear ski mounts, forward and rear boot mounts cooperating with the forward and rear ski mounts in retaining the boot to the ski and in releasing the boot from the ski, said rear boot mount and said rear ski mount respectively including cooperating releasably engagable shaped mating surfaces extending generally vertically of the ski, and including portions on opposite sides of the midline of the rear ski mount that extend generally laterally outwards and forwardly thereof, said rear ski mount further including movable latching means for engaging said rear boot mount and biased to normally prevent both singly and in combination, vertical or roll out disengagement of said mating surfaces, said rear boot mount having upper surfaces oriented generally parallel to the ski, said latching means of said rear ski mount comprising a shaped body member pivotally supported for swinging movement about an axis extending transverse of the ski and located below said upper surfaces of said rear boot mount when the

boot is engaged in said rear ski mount, said body member having a surface above and extending forwardly of said axis in ski binding position for overlying said upper surfaces of said rear boot mount, spring means cooperably related and normally urging said body member toward said rear boot mount to engage said surface thereof over said upper surfaces of said rear boot mount, said body member including an upper guideway inclined downwardly and forwardly of the longitudinal axis of the ski and located above the axis about which said body member pivots to permit step-in entry of the ski boot into said rear ski boot mounting, said forward boot mount comprising coacting means, said forward ski mount comprising means for engaging said coacting means, said forward ski mount comprising biasing means for biasing said means for engaging into contact with said coacting means, one of said coacting means and means for engaging having extending means for engagement with the other thereof to locate the boot toe and forward boot mount out of contact with the ski and out of further contact with the forward ski mount; and said forward ski mount biasing means maintaining the normal engagement of said releasably engageable means whereby lateral or forward disengagement of the rear boot mount from the rear ski mount is attained by overcoming the biasing force of said forward ski mount biasing means.

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