United States Patent

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[54] SAFETY TURNTABLE FOR A SKI BINDING

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[51] **Int. Cl.** **A63c 9/082**

[58] **Field of Search** ..... 280/11.35 A, 11.13, 11.3, 11.36, 280/11.37; 9/310

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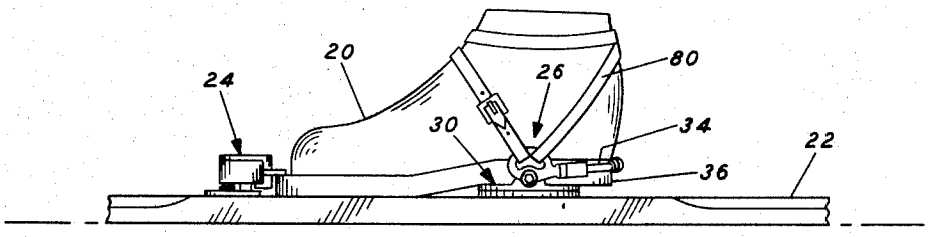
[57] **ABSTRACT**

A safety turntable for a ski binding includes a member fixed to a ski and another member adapted to be attached to a ski with one of the members being cylindrical and the other member having a cylindrical recess for receiving the cylindrical member. The cylindrical portion of one of the members is provided with a circularly extending groove and the other member is provided with movable detent means allowing the two members to rotate relative to one another but permitting disconnection of the members at any angle of rotation. A safety strap for preventing loss of the ski may be attached between the two members.

10 Claims, 7 Drawing Figures



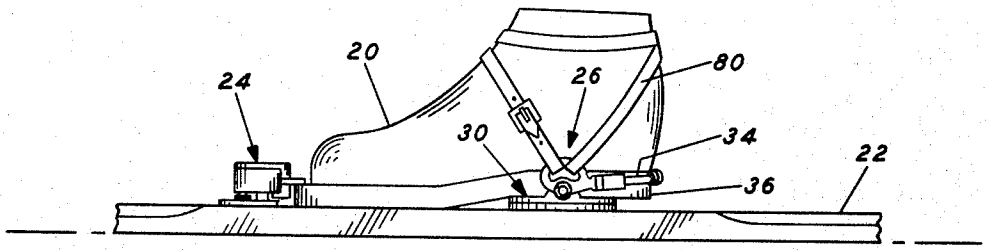


FIG. 1

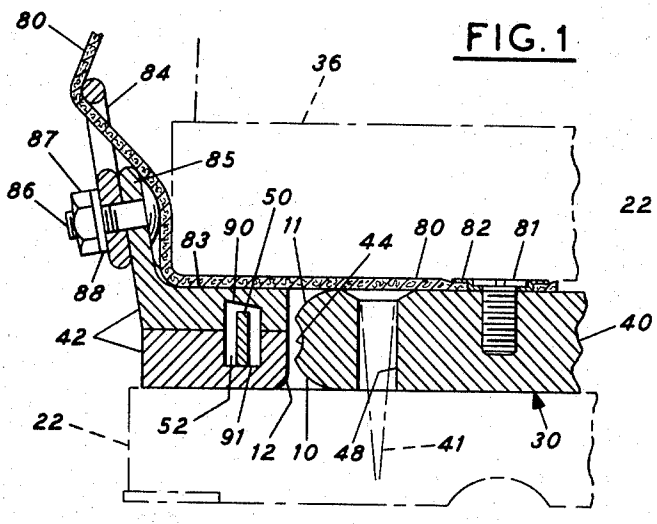


FIG. 3

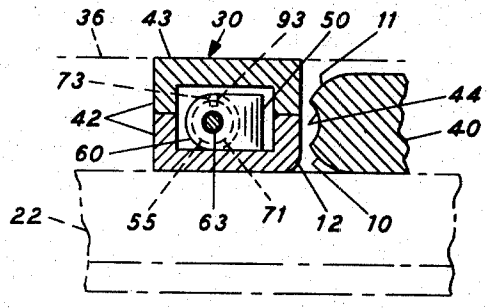


FIG. 5

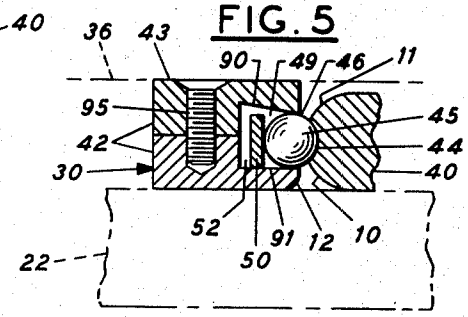


FIG. 4

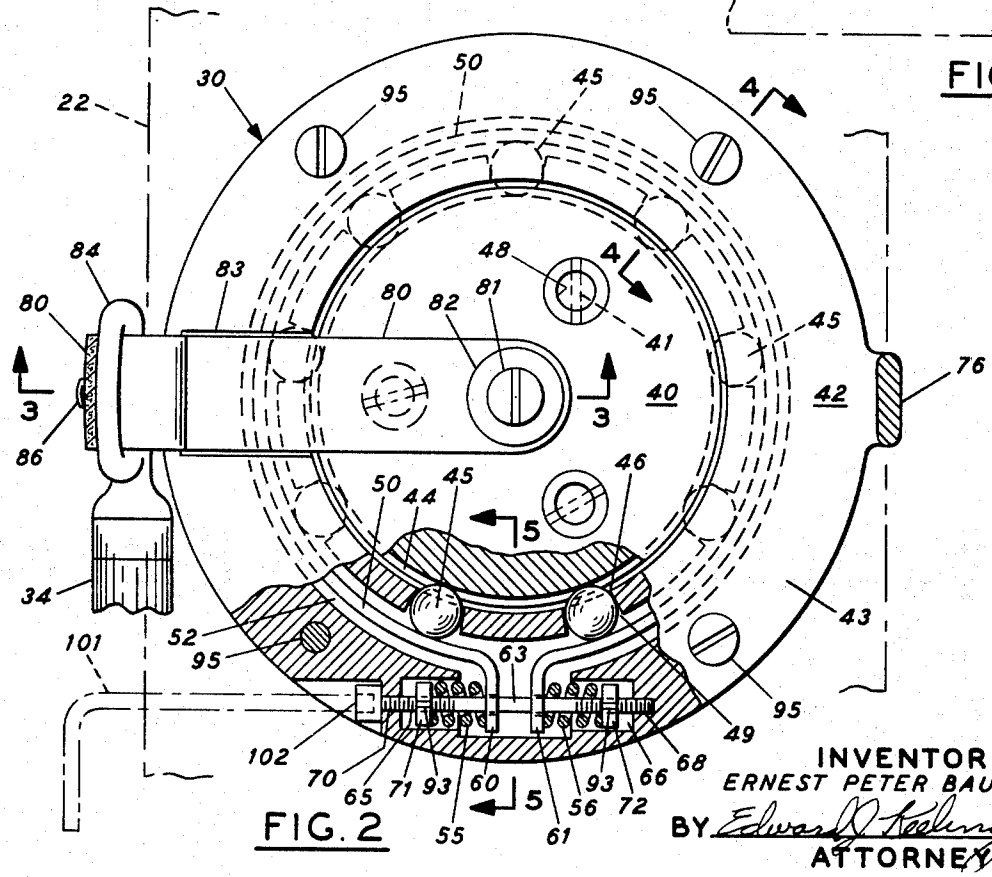


FIG. 2

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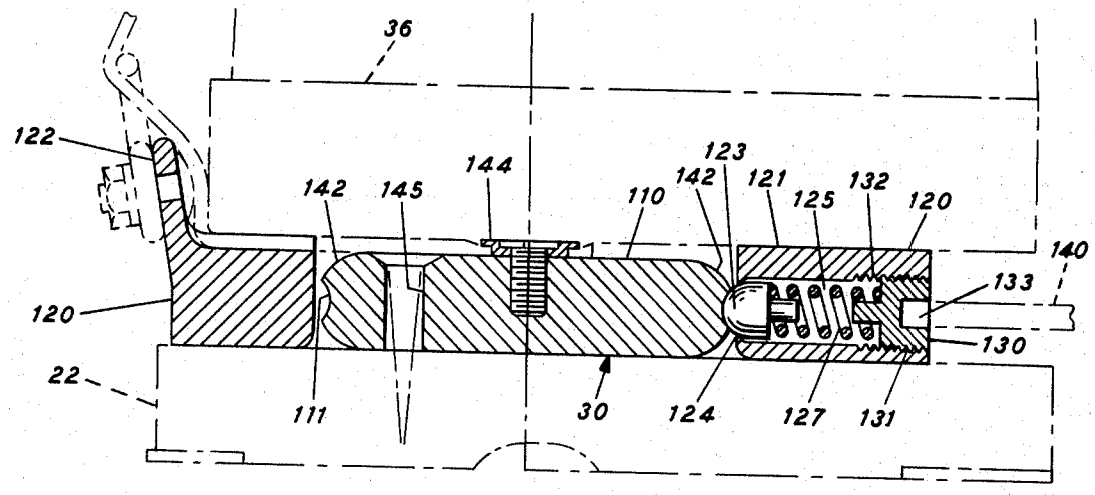

FIG. 7

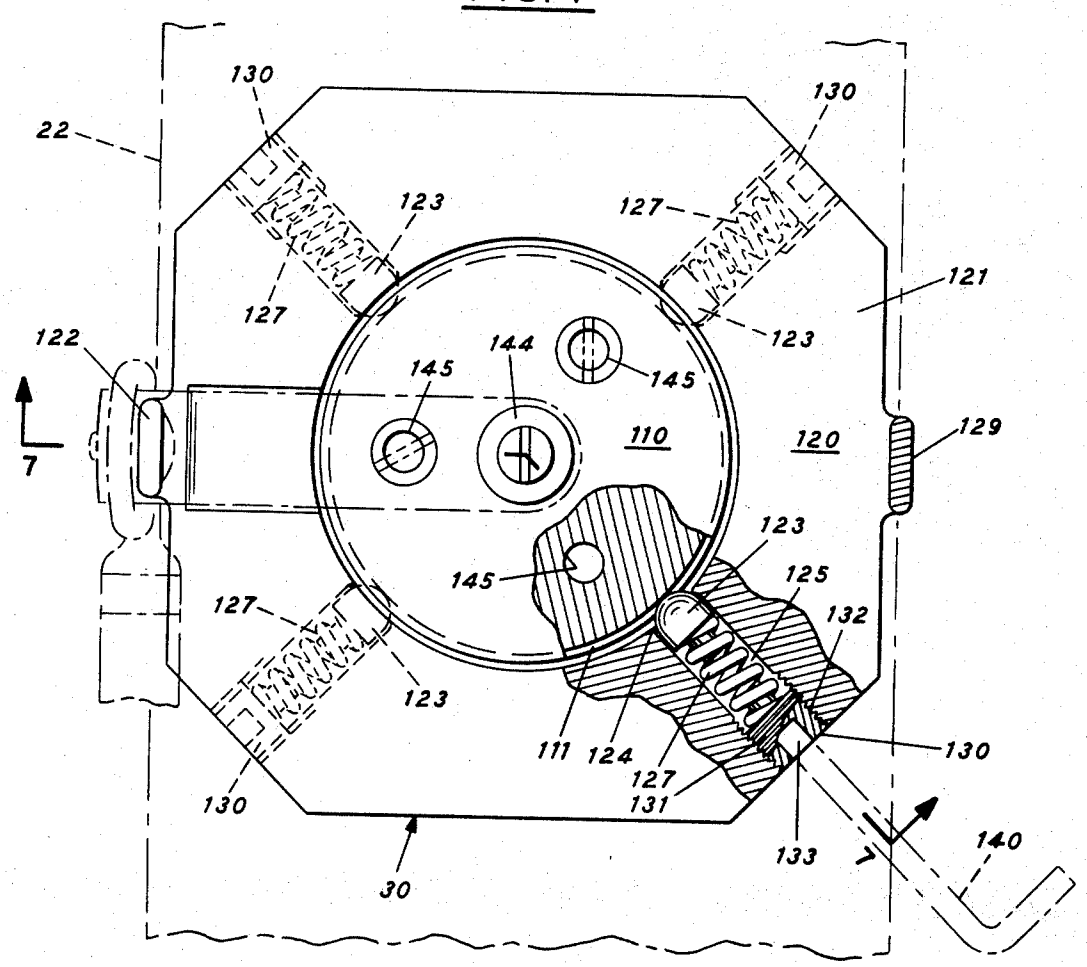

FIG. 6

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SAFETY TURNTABLE FOR A SKI BINDING

This invention relates to methods and apparatus for releasably binding a ski boot to a ski and more particularly this invention relates to a safety turntable for use in disconnectably connecting a ski boot to a ski.

In recent years skiing has become a major participant sport. As is well known to ski enthusiasts, skiing is a stimulating and exhilarating experience. In alpine skiing high speeds ranging up to 60 to 70 miles an hour and more are not uncommon. Even relatively unskilled skiers reach speeds of 20 to 30 miles an hour. Much skiing is done in rough and unpacked snow. Skiing at high speeds and/or in heavy or uneven snow requires that the skier have precise control over his skis.

In order to achieve this control, boots commonly known as ski boots, which fit snugly on the foot and extend up around the ankle are worn by the skier. During the actual ski run the skier must affix the ski boot to the ski in a manner which assures firm connection between the ski and the boot in order to achieve the highest degree of control. In the ultimate, the ski, the ski boot, and the skier should become as one so that the ski responds to the slightest pressure from the skier. Therefore it is desirable that the connection between the ski and the skier be firm and have little if any free play.

There is however a limit to the desirability of unitary construction of ski, ski boot, and leg; and this limit occurs when the stresses placed on the leg by the ski reach a stage where damage to the leg results. The modern ski usually ranges from about 5 to 7 feet in length depending on the height and weight of the skier. Since the ski boot is desirably firmly attached to the ski for control, the ski is potentially a large lever arm for transmitting forces to the leg. Although the forces may affect the skier in any direction they may be generally divided into two classes for purposes of discussion. One type occurs when the ski for some reason suddenly stops or slows down causing the skier to take a forward fall over the ski. This type of fall puts great stress on the skier's leg and particularly on the skier's Achilles tendon. The second general class is best described as a twisting force which occurs when a force is applied in the plane of the ski and across the ski. This type of force can cause a broken leg.

Heretofore the potential danger to the skier and particularly to the skier's legs has been recognized. Many attempts have been made in designing and constructing bindings for affixing the ski boot to the ski which in the event of an accident will release the ski boot from the ski. A number of these bindings have met with some degree of success. However there is still need for a safety ski binding for disconnectably connecting a ski boot to a ski which binding will firmly affix the skier to the ski to allow a maximum of control by the skier over the ski at high speeds and in heavy snow under acceptable conditions of stress on the skier's legs but which in the event of intolerable stress will release and allow the ski boot and the skier's leg to be safe from the force transmitted by the ski. There is further a need for a binding of such construction as to release the ski boot from the ski when an intolerable stress is applied to the skier in any direction; whether it be a forward fall, a twisting fall, a sideward fall, or a backward fall.

A broad aspect of this invention is to provide a safety turntable for use in disconnectably connecting a ski boot to a ski. The turntable of the present invention is used in combination with a toe portion of a ski binding to releasably affix a ski boot to a ski. In one aspect this invention provides a turntable for use in a ski binding comprising a pair of cooperating members, one of said members adapted to be fixedly mounted to a ski and the other of said members having a portion for operably seating a ski boot, and means disconnectably connecting said members together and allowing relative angular movement between said members, said means permitting said members to be disconnected at any position of relative angular alignment between said members by a predetermined force.

It is a particular object of this invention to provide a safety turntable for disconnectably connecting the heel portion of a ski boot to a ski and which turntable when used in cooperation with a means for securing the toe of the ski boot to the ski will provide a binding which provides a firm solid connection between the ski and ski boot to insure a maximum of control by the skier over the ski under conditions of acceptable stress but which in the event of intolerable stress will release the ski boot and permit the skier's leg to be safe from the effect of the force applied by the ski.

Further objects and advantages of the present invention will become apparent from the following detailed description read in light of the accompanying drawings which are a part of this specification and in which:

FIG. **1** is an elevation view and illustrates an embodiment of apparatus assembled according to this invention.

FIG. **2** is a plan view, with parts broken away for clarity of presentation, and illustrates a preferred embodiment of apparatus in accordance with this invention.

FIG. **3** is a sectional view taken at line **3**—**3** of FIG. **2**.

FIG. **4** is a section view taken at line **4**—**4** of FIG. **2**.

FIG. **5** is a sectional view taken at line **5**—**5** of FIG. **2**.

FIG. **6** is a plan view, with parts broken away for clarity, and illustrates an alternative embodiment of apparatus in accordance with this invention.

FIG. **7** is a sectional view taken at line **7**—**7** of FIG. **6**.

Reference is now made to the drawings and to FIG. **1** in particular which illustrates an embodiment of apparatus assembled in accordance with this invention and which is particularly helpful in understanding the invention. A ski boot **20** is mounted on a ski **22** by means of a ski binding including a toe mounting portion indicated generally by the numeral **24** and a heel mounting portion indicated generally by the numeral **26**. The heel portion **26** of the ski binding includes the safety turntable of the present invention and it is indicated generally by the numeral **30**. Also illustrated are means for operably securing the ski boot **20** to the safety turntable **30**. Suitable means for securing the ski boot **20** to the safety turntable **30** are a long thong **80** and a spring linkage means **34**.

The present invention provides a safety turntable **30** for use in binding a ski boot **20** to a ski **22**. In accordance with this invention the safety turntable **30** is mounted on a ski **22** and has a portion for operably seating the heel portion **36** of a ski boot **20**. A means **80** is provided for securing the ski boot **20** to the safety turntable. The heel mounting portion **26**, including the safety turntable **30**, cooperates with a toe mounting portion **24** to operably secure a ski boot to a ski **22**. In this respect it is pointed out that there are numerous commercially available toe mounting portions such as the toe mounting portion indicated as **24** in FIG. **1**. An automatically releasable safety toe binding portion is described in U.S. Pat. No. 2,858,137 issued on Oct. 20, 1958 to Hannes Marker. Although it is highly preferred to use a safety type toe binding it is noted that the safety turntable of the present invention is not limited to use with any particular toe binding portion and may be used in combination with any suitable toe mounting and with any suitable means for attaching the safety turntable to the ski boot.

In FIG. **2** a preferred embodiment of apparatus assembled in accordance with the present invention is illustrated in plan view, A portion of the upper part of the apparatus illustrated in FIG. **2** has been broken away for clarity of presentation. A first member **40** is adapted to be fixedly mounted to a ski. For example as illustrated in phantom in FIG. **2** the first member **40** is provided with suitable holes **48** for receiving wood screws **41**. The screws serve to fixedly mount the first member **40** to the ski. A second member **42** is provided with a relatively flat surface indicated by the numeral **43** for seating the heel portion of a ski boot. A means **85** is provided for operably binding the ski boot to the second member **42**. The first member **40** and the second member **42** are constructed as separated entities but they are capable of cooperating with each other for relative angular motion when operably disconnectably connected in accordance with this invention.

The first member **40** and the second member **42** are so constructed relative to one another so that they cooperate for relative angular movement. In the preferred embodiment of the invention the first member **40** is of generally circular form in plan view. The second member **42** is formed for cooperation with the fist member **40**. The second member **42** is adapted to move angularly with respect to the first member **40**. A portion of the second member **42** is generally circular in plan view so as to cooperate with the first member for relative angular movement therewith. This manner of cooperation between the first member **40** which is adapted to be fixedly mounted to a ski and the second member **42** which is adapted to operably seat a ski boot permits a ski boot affixed to said second member to be rotated or moved angularly in a predetermined plane with respect to the ski when the members are disconnectably connected. When operably disconnectably connected together the second member which has a portion for seating a ski boot extends above the first member. That is, the ski boot is held on the second member and it is not permitted to seat on the fixedly mounted first member.

A means is provided for disconnectably connecting the first member **40** and the second member **42**. The first member **40** and the second member **42** are disconnectably connected in a manner which permits no free play or wobble between the members when they are connected. The means for disconnectably connecting the first member **40** and the second member **42** permits relative angular movement in a predeterminable plane between the members when they are disconnectably connected. That is, the second member **42** is rotatable about the first member **40** when the first member is fixedly mounted to the ski. It is important to note however that the members are disconnectable at all positions of relative angular alignment. The first member **40** and the second member **42** are disconnectably connected and they may be disconnected by the application of a predetermined force. It is evident therefore that the safety turntable of the present invention will operate upon application of a predetermined force on the skier from any direction.

With further reference to FIG. **2** and to FIG. **3**, FIG. **4**, and FIG. **5** the preferred embodiment of apparatus in accordance with the present invention will be described in detail. The first member **40** is provided with a groove **44**. The groove **44** is adapted to receive a means movable of the second member **42** to disconnectably connect the first member **40** and the second member **42**. The means movable of the second member **42** may be for example a plurality of spheres **45**. The groove is preferably a circularly extending groove having a center at the center of the first member **40** and a radius suitable for cooperation with the second member **42**. The groove is of a preselected size and shape, determined by the form of the means movable of the second member **42**. The groove receives and retains the means movable of the second member in such a manner as to permit the second member **42** to move angularly in a predetermined plane with respect to the first member **40**. Thus the members provide a firm connection for the skier in the disconnectably connected position.

The second member **42** is provided with a means operably connecting the means movable of the second members **42** to the said second member. For example, a plurality of radially spaced-apart chambers **49** which house the spheres **45** and which allow limited reciprocating motion of the spheres **45** are provided in the second member **42**. Each of the chambers **49** is provided with an opening or port **46**. The ports **46** are formed to permit the spheres to partially extend out of the ports but not to escape from the chambers **49**. The ports **46** are positioned to permit the spheres **45** in the second member **42** to extend out and engage in the groove **44** of the first member **40**. The ports are formed so that a substantial portion of the spheres **45** may extend through the ports **46** without allowing the spheres **45** to escape out of the chambers **49**. When the radially spaced-apart spheres **45** are extended out of the ports **46** and engaged in the groove **44** in the first member **40**, a connection is made between the first and second members. The ports **46** and spheres **45** and groove **44** are proportioned in a manner so that the spheres **45** need not be completely extended to the limit out of the chambers **49** to fit snugly into the groove in the first member **40**.

A resilient means is provided to urge the means movable of the second member into the groove provided in the first member. The resilient means urges the spheres **45** out of the chambers **49** of the second member **42** and into the groove **44** of the first member **40** to disconnectably connect the members. The resilient means is adjustable so that the force urging the spheres into the groove can be varied. Therefore the force needed to separate the first member **40** and the second member **42** is adjustable. The resilient means is provided with a means for adjusting the force exerted by the resilient means. A relatively inflexible band **50**, freely positioned in channel **52**, contacts the rearward portion of each of the spheres **45**. The band **50** is spring-mounted by springs **55** and **56**. The springs **55** and **56** and the band **50** cooperate to urge the spheres **45** out of ports **46** and against the groove **44** in the first member **40**. However, it is readily seen that the members may be separated by a predeterminable amount of force applied on the members. When a sufficient amount of force is applied, as for example the force applied to the members in a forward fall by a skier, the second member **42** moves up over the fixedly mounted first member **40**. The spheres **45** move back into the chambers **49** and cause band **50** to expand. If the force is strong enough, the second member **42** will snap off the fixed member **40**.

The first member **40** and the second member **42** are disconnectably connected together in a manner to allow relative angular movement between the members. In this respect it is not necessary or desirable that the members freely rotate or move angularly with respect to one another. Rather, it is in accordance with this invention that some external force must be applied to overcome the friction between the members and between the rotatable member and the ski to cause relative angular motion between the members. The second member **42** is slidable with respect to the ski and therefore it can move an angularly on the ski.

Thus, in operation, the first member **40** is fixedly mounted to a ski. The second member **42** is disconnectably connected to said first member **40** for relative angular movement therewith. A ski boot holding a skier's foot is seated on the second member **42** and operably connected thereto as will be fully described herein. While skiing, if a force exceeding a predetermined magnitude is exerted on the skier's leg and is transferred to the second member **42**, the spheres **45** are pushed against the band **50** and cause the band to force springs **55** and **56** to compress. In this manner the second member **42** to which the skier's leg is affixed is allowed to separate from the first member **40** to which the ski is affixed.

On the other hand, if a force is applied to the ski which although large in magnitude, does not come in a direction which causes the first and second members to separate as described above but rather which causes a twisting force to be applied to the skier's leg and thereby causes the toe mounting of the ski binding to open and to free the skier's toe from the ski, the second member **42** to which the heel portion of the ski boot is affixed will be rotated with respect to the first member **40** and to the ski and thus damage to the skier's leg will not occur. It is a particular advantage of the present invention that the skier is protected from falls in which the first and second members will be disconnected and from falls which cause a twisting force to be applied to the ski causing the safety toe portion to release and in which the first and second members move angularly with respect to one another to prevent twisting of the skier's leg.

The adjusting means for adjusting the force exerted by the resilient means on the means movable of the second member will be fully described now. The relatively inflexible band **50** which acts to distribute force evenly on the spheres is provided with lugs **60** and **61**. The lugs **60** and **61** have holes for slidably receiving a shaft **63**. The shaft **63** is rotatably mounted

in bearings **68** and **70** and has threaded portions **65** and **66**. A pair of traveling nuts **71** and **72** are provided with threads mating with the threads on the shaft **63**. One nut is provided with left hand threads and the other with right hand threads. The nuts are slotted at **93** and are keyed by suitable means such as keyway **73** to prevent the nuts from rotating as the shaft is rotated. The nuts are thus caused to move toward each other when the shaft **63** is rotated in one direction and away from each other when the shaft **63** is rotated in the opposite direction. A key **101**, shown in phantom, fits in a keyhole in the head **102** of the shaft **63** to provide the rotational movement. A spring **55** is positioned in compression between nut **71** and lug **60** and a spring **56** is positioned in compression between lug **61** and nut **72**. In this manner the band **50** is allowed to expand if enough force is applied to further compress the springs. The force necessary to compress the springs is adjustable by rotating the shaft **63**.

In accordance with this invention means for fixedly binding the ski boot to the second member **42** are provided. In a preferred form the binding means also includes a flexible safety element to flexibly connect the ski boot and the second member **42** to the first member and the ski when for some reason, for example a fall, the first and second members become disconnected. When a skier falls and a safety binding releases, the skier is freed from the ski. If there is no provision made for a flexible element, such as a strap to flexibly connect the skier and the ski, the ski will be free to slide down the mountain. This can result in a serious accident if the loose ski strikes a person further down the mountain, or in a lost ski.

A flexible strap **80** which is preferably made of leather is pivotally mounted by suitable means to the upper surface of the member **40** which is to be fixedly mounted to the ski. A suitable means for pivotally mounting the strap **80** on the fixedly mounted member **40** includes a grommet **82** which holds the strap **80** and which provides a bearing surface when a bolt **81** mounts the strap on the fixedly mounted member **40**. The strap **80** lies flat along the top surface of the fixedly mounted member **40**. Since the fixedly mounted first member **40** is slightly lower than the rotatable second member **42** the strap does not interfere with the heel of the ski boot. The rotatable member **42** is higher in cross section than the fixedly mounted member **40** in order that the ski boot can be seated on the rotatable member **42** substantially without touching the fixedly mounted member **40** so as not to interfere with relative angular movement between the two members.

The rotatable second member **42** is provided with a channel **83** to receive the strap **80** so that the strap **80** is recessed below the bottom of the ski boot. The strap slidably extends through an eye member **84** provided on the rotatable member **42** and the strap is operably wrapped around the ski boot. A buckle is provided on either eye member **84** or on a similar eye member (not shown) on the other side of rotatable member **42** for operably connecting the strap **80**. When the first and second members are disconnected the strap is a flexible connection between the skier and the ski. Since the strap is pivotally mounted in the center of the fixed member **40** it does not interfere with angular movement between the fixed member **40** and the rotatable second member **42**. The rotatable member **42** is provided with a pair of lugs **85** and **76** which serve as means to connect the ski binding means to the second member **42**. The lugs **85** and **76** are also useful to engage the lower sides of the ski boot and thus aid in firmly mounting the ski boot to the rotatable member **42**. A bolt **86** and a nut **87** fixedly mount the eye member **84** on the rotatable member **42**. The member **42** may for example be formed of two parts connected in a suitable manner such as by screws **95**.

It is contemplated that the strap **80** and the lugs **85** and **76** can fixedly connect the ski boot to the rotatable member **42**. It is preferred however to also utilize a heel spring means to assist in binding the ski boot to the rotatable member **42**. The heel spring **34** may be, for example, fixedly connected to eye member **84** and pivotally mounted on lug **85** by a bolt **86**, a nut **87**, and a washer **88**. A similar connection is made to lug **76**. The heel spring **34** extends around the back portion of the heel of the ski boot. A means is provided to tension and lock the heel spring. The construction and operation of the heel spring is well known in the art and therefore it will not be described in detail in this specification. A heel spring suitable for use in this invention is fully described in U.S. Pat. No. 3,009,710 issued Nov. 21, 1961.

To further describe the operation of the strap **80** reference is made to FIG. **1** where a general arrangement of a strap wrapped on a ski boot is shown. The strap when firmly wrapped around the ski boot serves to give a very desirable connection for controlled skiing and it is a particular advantage of this invention to provide a safety turntable so that a long thong may be used as a binding to obtain maximum control and still retain all the advantages of a release binding. In the event that the fixed member **40** and the rotatable member **42** become disconnected as in a fall, the strap remains wrapped around the ski boot and also remains connected to the fixedly mounted member. Thus the ski is flexibly connected to the ski boot and will not run away. A further advantage provided by the flexible connection provided by strap **80** between the disconnected members, is that while the ski is not fixedly mounted to the ski boot it is still not so loose as to freely thrash around and thus endanger the skier.

When for some reason the disconnectably connected members **40** and **42** are disconnected and it is desired to reconnect them, it can be seen that the members may be snapped together. The rounded shoulder **11** of fixedly mounted member **40** is helpful in guiding the rotatable member **42** into its proper position and makes it easier to connect the members than to disconnect them. The lower inner edge of the rotatable member **42** may also be beveled as indicated by the numeral **12** to aid in guiding the members together. A special feature in the construction of the chambers **49** containing the spheres **45** makes it easier to snap the first and second members together than it is to disconnect the members. This is advantageous because the two members are most often coupled together using the fingers. The upper wall **90** of each of the chambers housing the spheres is sloped away from the port **46** as shown clearly in FIG. **4**. In this manner when the rotatable member **42** is pushed down over the fixedly mounted member **40** when the members are being coupled the spheres **45** will more easily slide back into the chambers because of the relatively less friction between the sphere and sloped wall **90**. On the other hand the lower walls **91** of the chambers **49** are not sloped. Therefore the spheres **45** move less easily against the lower wall **91** and a greater force is therefore required to slip the spheres back into the chambers and to thus disconnect the first and second members.

An alternative arrangement of apparatus in accordance with this invention is illustrated in FIG. **6** and FIG. **7**. A member **110** for fixedly mounting on a ski is provided with a circularly extending groove **111**. A rotatable member **120** is provided for cooperation with the fixedly mountable member **110**. The rotatable member **120** is capable of angular movement with respect to the fixedly mountable member **110**. A means for disconnectably connecting the rotatable member and the fixedly mountable member is provided. The means for disconnectably connecting the members allows relative angular motion of the members with respect to each other. The rotatable member **120** is provided with a portion **121** for seating a ski boot. Means **122** are provided on the rotatable member **120** for operably connecting a ski boot to the rotatable member **120**. The fixedly mountable member **120** is provided with suitable holes **145** for mounting the member on a ski.

Means movable for engaging the circularly extending groove **111** of the fixedly mountable member **110** in a plurality of spaced-apart locations are operably connected to the rotatable member **120**. For example piston members **123** are partially extendible through ports **124** of chambers **125**. The piston members **123** are adapted for limited reciprocating movement in the chambers **125**. Resilient means, such as

springs **127**, normally urge the piston members to extend out of the ports **124** and into engagement with the circularly extending groove **111** of fixedly mountable member **110** to disconnectably connect the rotatable member **120** to the fixedly mountable member **110**.

A particular feature of the alternative embodiment of apparatus is provided by the individual adjustment of the force of each spring **127** acting on the piston members **123**. The adjustment of each spring **127** is accomplished individually by rotating a plug **130** which has a threaded portion **131**. The threaded portion **131** of the plug mates with threads **132** provided in the rear portion of each chamber **125**. A keyhole **133** is provided at the rear of each of the plugs **130**. When it is desired to adjust the force of a spring a key **140** is inserted into the keyhole **133** and the plug is screwed in the appropriate direction.

The fixedly mountable member **110** is provided with a sloping shoulder **142** which assists in smoothly depressing the piston members **123** as the rotatable member **120** is positioned on and disconnectably connected to the fixedly mountable member **110**. A means **144** for pivotally mounting a flexible element is provided on member **110**.

It is apparent that modifications other than those described herein may be made to the apparatus of this invention without departing from the inventive concept. It is intended that the invention embrace all equivalents within the scope of the appended claims.

I claim:

1. A safety turntable for use in a ski binding comprising a first member adapted to be fixedly mounted on a ski, a circularly extending groove in said first member, a second member having a surface for seating the heel portion of a ski boot, means movable operably connected to said second member and extendible into said groove in said first member for disconnectably connecting said second member to said first member, and resilient means in said second member urging said means movable into operable engagement with said groove in said first member.

2. The apparatus of claim **1** including an adjusting means for adjusting the resilient means to vary the force exerted on said means movable by said resilient means.

3. A safety turntable for use in a ski binding comprising a first member adapted to be fixedly mounted on a ski, a circularly extending groove in said first member, a second member having a surface for seating the heel portion of a ski boot, means movable operably connected to said second member and extendible into said groove in said first member for disconnectably connecting said second member to said first member, resilient means in said second member urging said means movable into operable engagement with said groove in said first member, and means on said second member for operably connecting a ski boot to said second member.

4. A safety turntable for use in disconnectably connecting a ski boot to a ski comprising a first member, means for mounting said first member to a ski, a circularly extending groove in said first member, a second member, a relatively flat portion on said second member for seating the heel portion of a ski boot, a plurality of radially spaced chambers in said second member, port means in said second member communicating with said chambers, means movable in said chambers partially extendible out of said port means for operably engaging said circularly extending groove, and resilient means in said second member normally urging said means movable into said groove to disconnectably connect said first and said second member.

5. The safety turntable of claim **4** including means provided in the members to require a greater force to disconnect the members than to connect the members.

6. The safety turntable of claim **5** where the said means includes a sloping wall in each of the chambers.

7. A safety turntable for use in disconnectably connecting a ski boot to a ski comprising a first member, means for mounting said first member to a ski, a circularly extending groove in said first member, a second member, a relatively flat portion on said second member for seating the heel portion of a ski boot, a plurality of radially spaced chambers in said second member, port means in said second member communicating with said chambers, means movable in said chambers partially extendible out of said port means for operably engaging said circularly extending groove, resilient means normally urging said means movable into said groove to disconnectably connect said first and said second member, and adjusting means for adjusting the force exerted on said means movable by said resilient means.

8. A safety turntable for use in disconnectably connecting a ski boot to a ski comprising a first member, means for fixedly mounting said first member to a ski, a circularly extending groove in said first member, a second member, a relatively flat portion on said second member for seating the heel portion of a ski boot, a plurality of radially spaced chambers in said second member, port means in said second member communicating with said chambers, means movable in said chambers partially extendible out of said port means for operably engaging said circularly extending groove, resilient means normally urging said means movable into said groove to disconnectably connect said first and said second member, adjusting means for adjusting the force exerted on said means movable by said resilient means, and means on said first member for pivotally mounting a flexible element.

9. Apparatus for use in a ski binding comprising at least a pair of members including a first member adapted to be fixedly mounted to a ski and a second member having means for affixing a ski boot thereto, circularly extending groove means in one of the members, means movable operably connected in the other of the members and extendable into said groove means, resilient means urging said means movable into operable engagement with said groove means to disconnectably connect said members and means for adjusting the force exerted by said resilient means.

10. A safety turntable for use in a ski binding comprising a first member for fixedly mounting on a ski, a second member having a portion for seating on a ski boot, connecting means disconnectably connecting said second member and said first member, connecting means allowing said second member to be disconnected from said first member at any relative angular alignment between the members by a predetermined force, means permitting said second member to move angularly in a predeterminable plane with respect to said ski when the members are disconnectably connected, means provided in the members to require a greater force to disconnect the members than to connect the members, and adjusting means for adjusting the amount of force required to to disconnect said second member from said first member.

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