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(54) FRAME AND BINDING FOR A SNOWSHOE, AND RELATED SYSTEMS AND METHODS

(76) Inventors: **William Edwin Forrest**, Salida, CO (US); **Jane Andrea Verrall**, Seattle, WA (US)

Correspondence Address:
Mr. John M. Janeway
GRAYBEAL JACKSON HALEY LLP
Suite 350
155 - 108th Avenue NE
Bellevue, WA 98004-5901 (US)

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(52) **U.S. Cl.** **36/122**; 36/125

(57) **ABSTRACT**

A snowshoe includes a lightweight frame that provides traction and maintains the snowshoe's shape when traveling over at least one of the following surfaces: snow, hard-packed snow and ice, and a binding to fasten the snowshoe to a boot with a gloved hand. The frame includes a peripheral component having a length, a height orthogonal to the length, and a width orthogonal to the height and at least two times shorter than the height at all locations along the height. The binding includes a strap, and a retention element coupleable with the strap. The retention element includes a body defining a main passage in which the strap is disposed when coupled with the retention element, an access passage through which the strap passes to enter the main passage, and a locking element to secure the strap to the retention element.

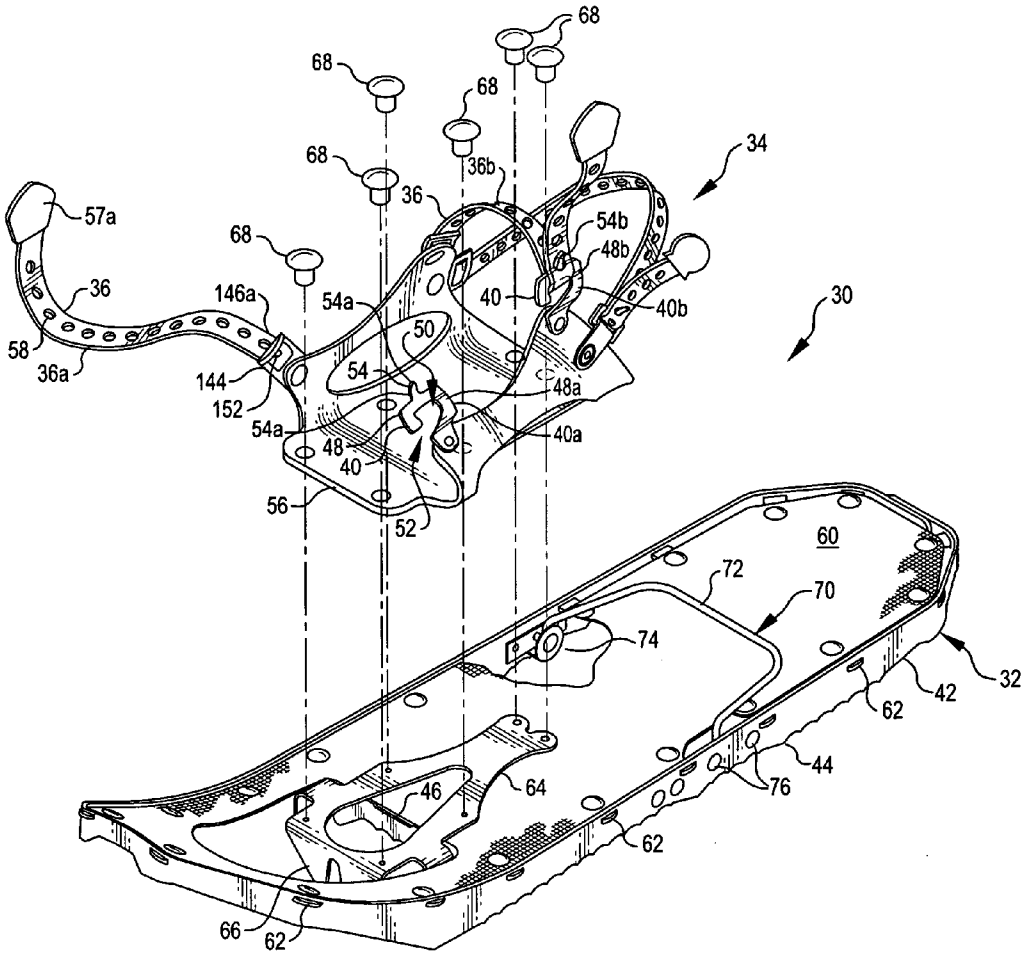


FIG. 1
PRIOR ART

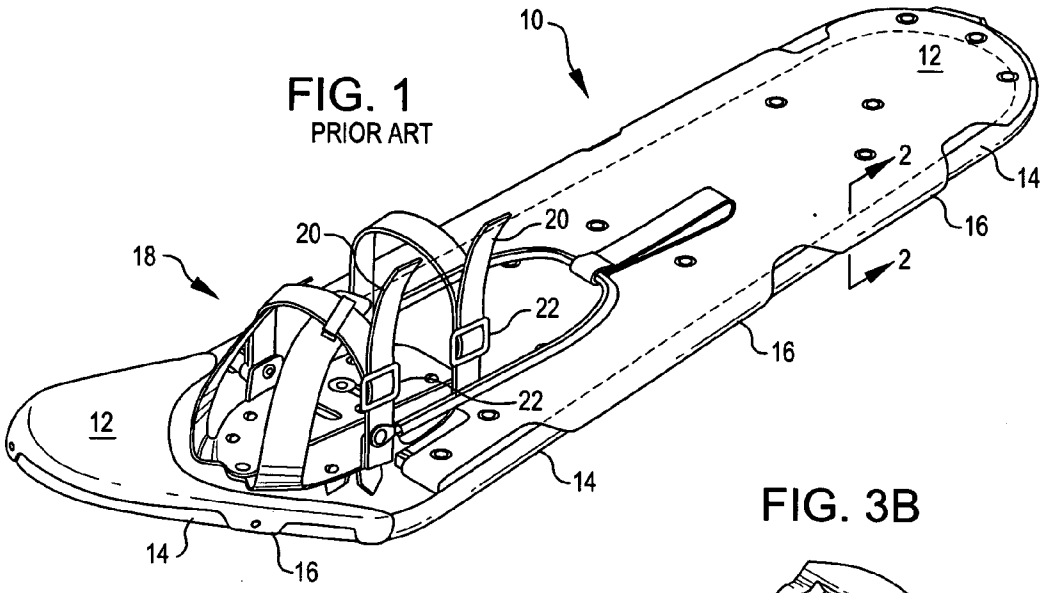


FIG. 2
PRIOR ART

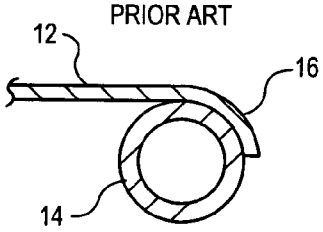


FIG. 3B

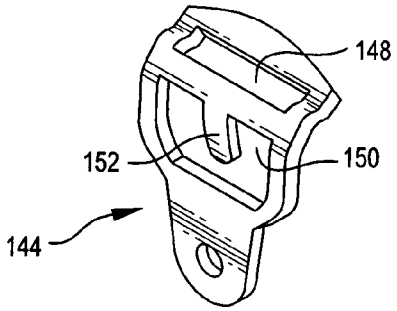


FIG. 6

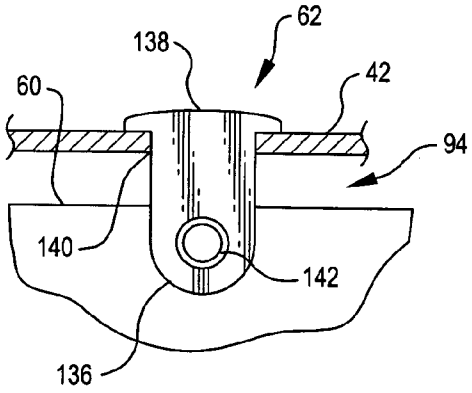
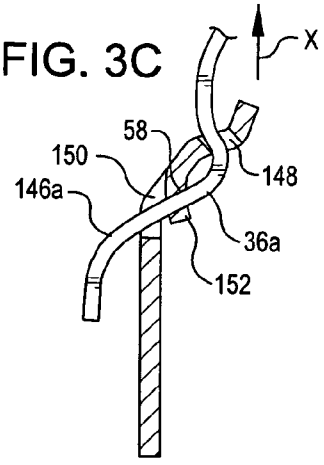
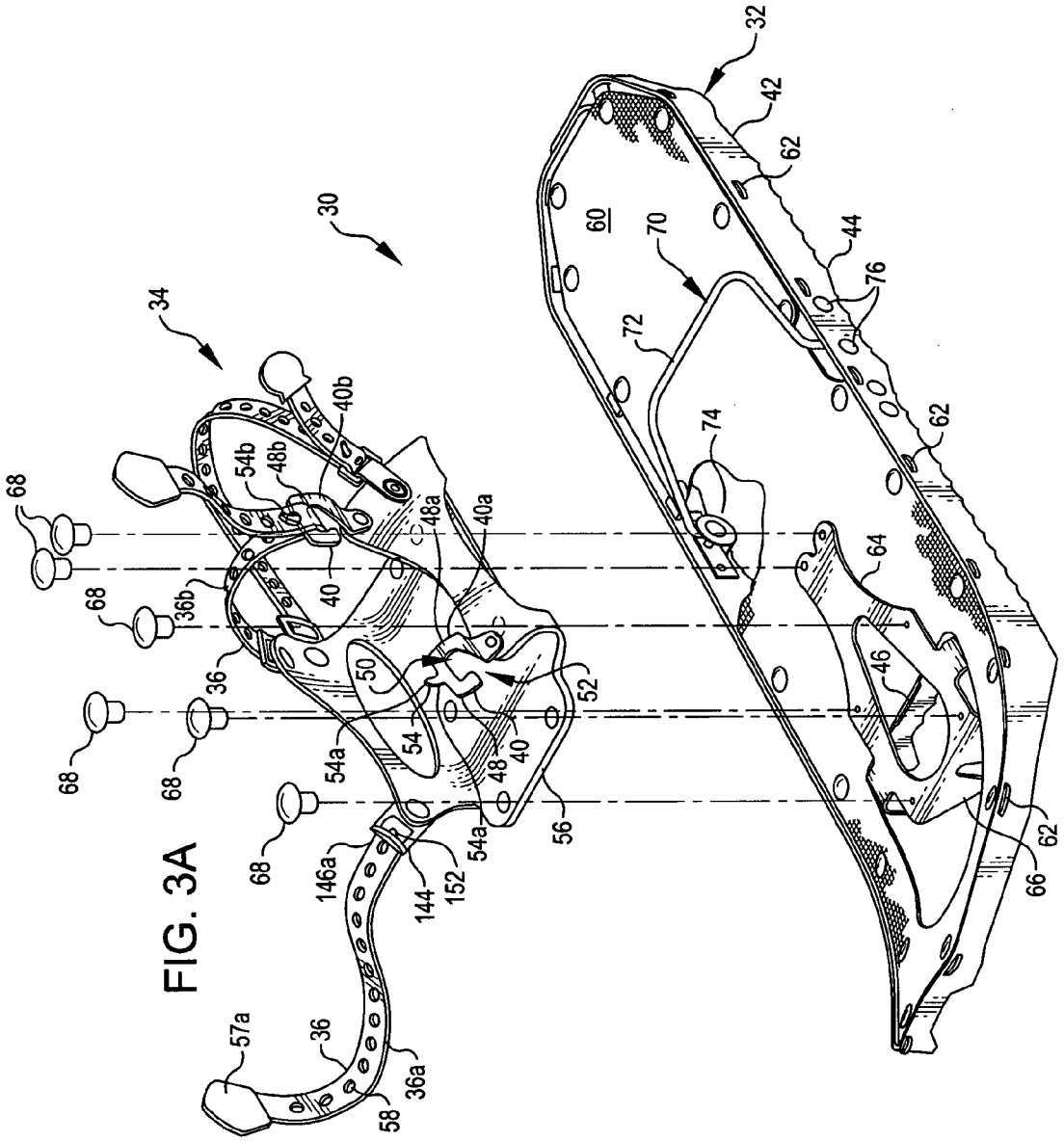


FIG. 3C

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72
40b
74
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54b
48b
68
46a
40a
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40
36b
68
36
50
46
52
54
68
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54a
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68
54a
146a
144
152
62
66
57a
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36a
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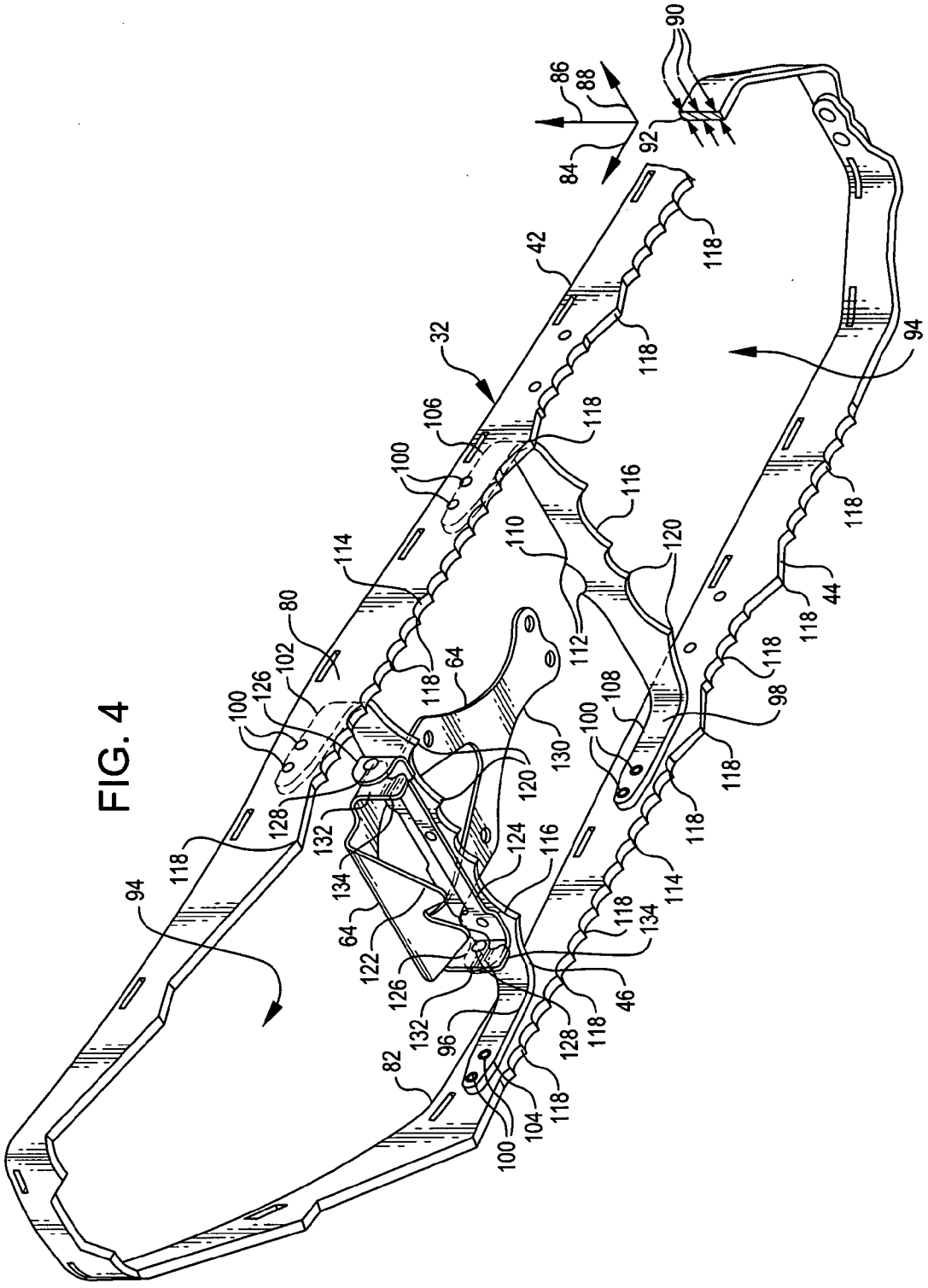
FIG. 3A


90
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42
118
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106
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110
114
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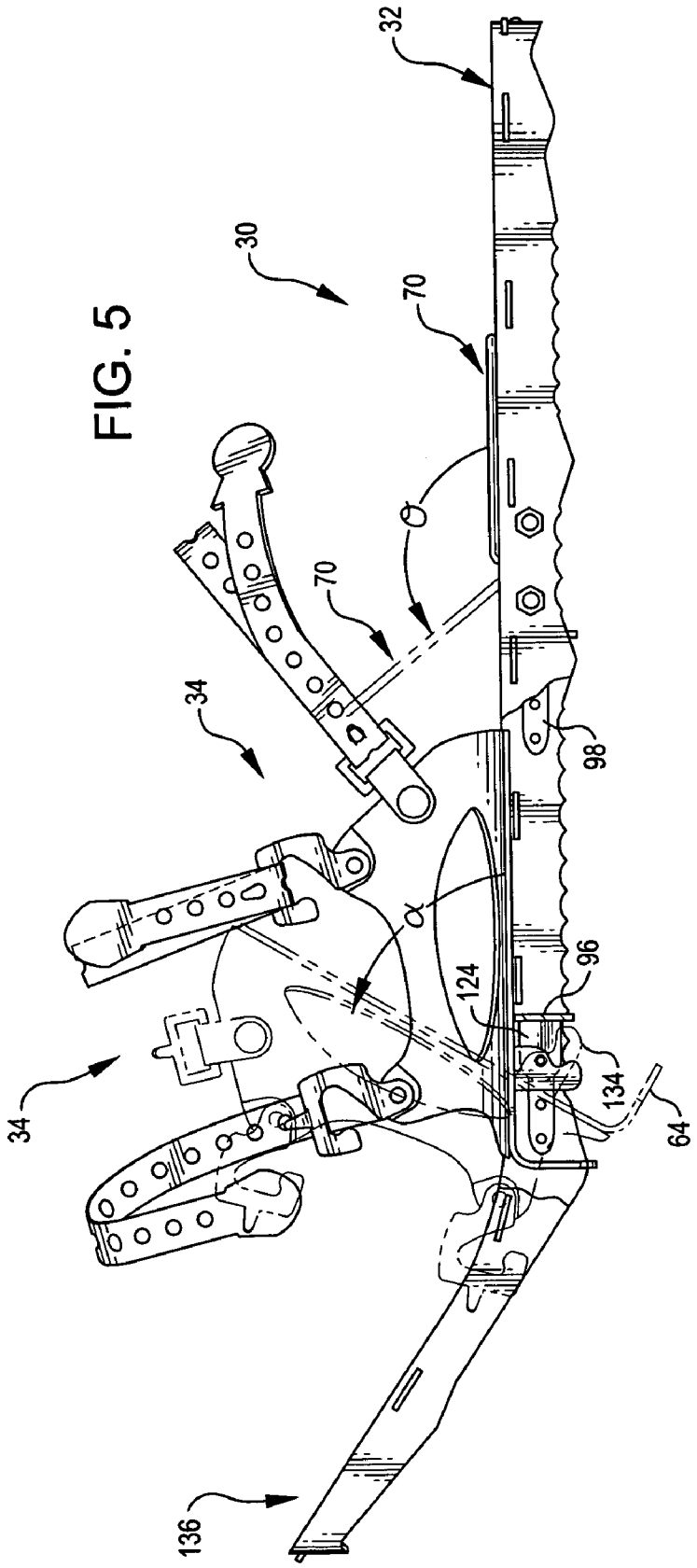
104

FIG. 4

FIG. 5



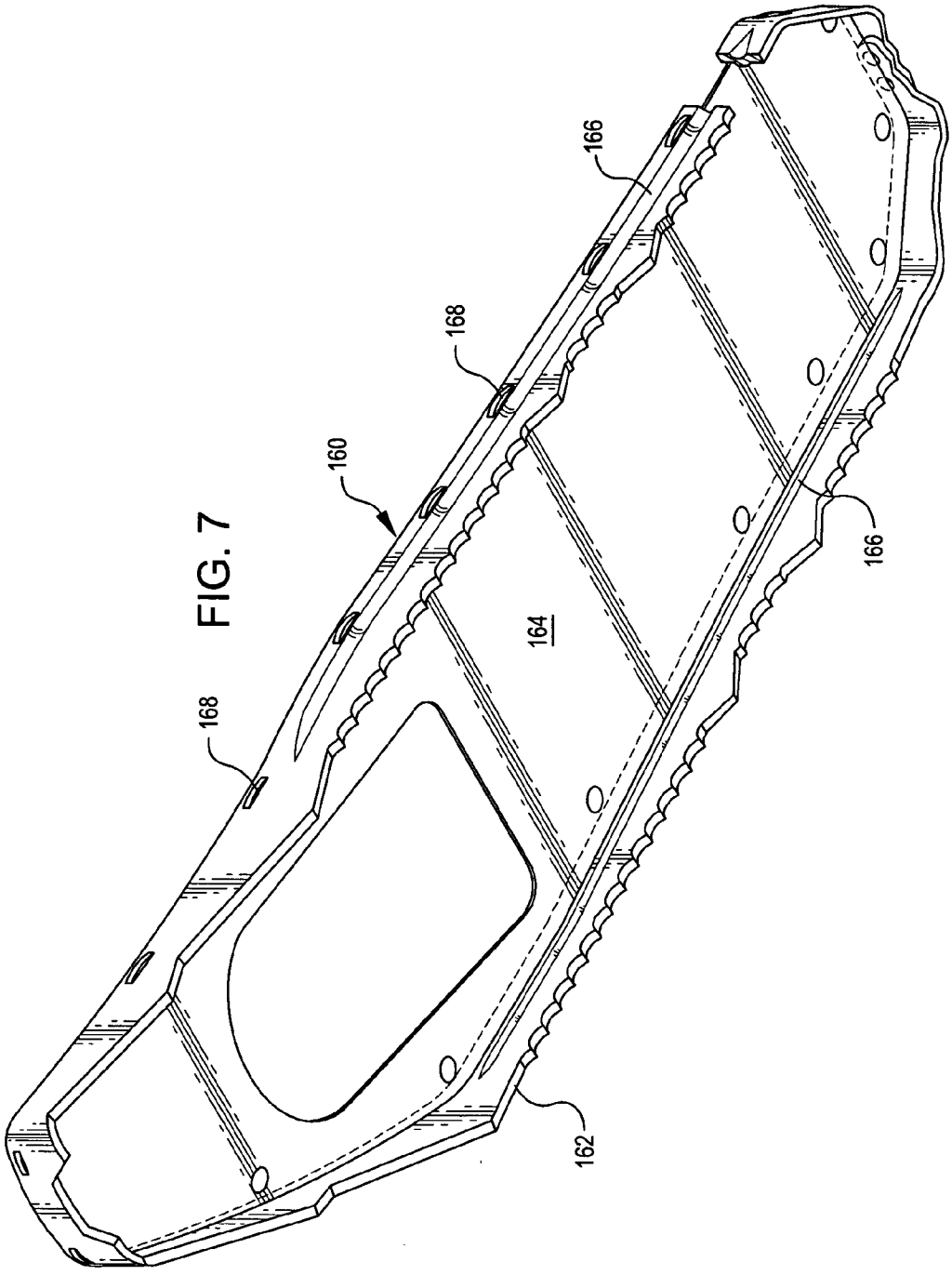


FIG. 7

FRAME AND BINDING FOR A SNOWSHOE, AND RELATED SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of the PCT Application No. PCT/US04/02845, titled FRAME AND BINDING FOR A SNOWSHOE, AND RELATED SYSTEMS AND METHODS, and filed 29 Jan. 2004, which is herein incorporated by reference, that claims priority from U.S. Provisional Patent Application No. 60/444,331, titled WhiteLitening Snowshoe, and filed **30** Jan. 2003. This application claims the benefit of the filing date of the PCT application under 35 USC §120. This application also claims priority from the U.S. Provisional Patent Application No. 60/444,331, which is hereby incorporated by reference in its entirety.

BACKGROUND

[0002] Many people use snowshoes to facilitate travel in rugged backcountry during the winter when snow typically blankets the terrain. Depending on the latitude and elevation of the backcountry, snow can frequently accumulate to a depth of a foot or more. At such depths travel can be very difficult because one's foot typically penetrates the snow a foot or more, which causes one to spend much energy lifting one's foot out of the hole to take another step. Thus, many people mount a snowshoe to each foot when traveling such terrain to buoy one's foot toward the surface of the snow, i.e. prevent one's foot from penetrating the snow more than about six inches.

[0003] **FIG. 1** is a perspective view of a conventional snowshoe **10**. The snowshoe **10** includes a deck **12** to disperse one's weight over an area of the snow's surface (not shown) that is larger than the area of one's footprint, and a frame **14** to support one's weight and to prevent the deck from substantially deforming when dispersing one's weight. The deck **12** is typically fastened to the frame **14** by wrapping a tab **16** of the deck **12** around a portion of the frame **14** as shown in **FIG. 2** and fastening the tab **16** to the frame **14**. The frame's cross-section is typically round, and may be hollow such as a tube's as shown in **FIG. 2**, or solid, such as bar's, to provide the frame **14** with the desired strength and stiffness to support one's weight and to prevent the deck **12** from deforming. The snowshoe **10** also includes a binding **18** to fasten the snowshoe **10** to the boot (not shown) on one's foot. The binding **18** is typically mounted to the frame **14** and includes a strap **20** and buckle **22** that can be releasably coupled together to allow one to securely fasten and remove the snowshoe **10** from one's boot. The strap **20** and buckle **22** also allow one to fasten the snowshoe **10** to different sized boots.

[0004] Unfortunately, the snowshoe **10** has some problems. Although the snowshoe **10** may work well in powder snow, the snowshoe **10** often fails to provide sufficient traction for traveling over snow, hard-packed snow and ice. When traveling over snow, hard-packed snow and ice the frame **14** often fails to penetrate the surface, and thus much of the snowshoe's contact with the surface is made with the frame **14**. Because the frame **14** has a round or square cross-section, the frame **14** can easily slide across the surface, which makes traversing across a hill's slope, ascending a hill or descending a hill difficult when the surface of the hill includes snow, hard-packed snow or ice.

[0005] Another problem with the snowshoe **10** is that the binding **18** is often difficult to operate with gloved hands. To fasten the snowshoe **10** to one's boot, one may remove the strap **20** from the buckle **22** to allow one to easily drop one's boot into the binding **18**. But one must then thread the strap **20** back through the buckle **22** to fasten the snowshoe **10** to the boot. With gloved hands this is often difficult and frustrating. Another way to fasten the snowshoe **10** to one's boot may be to move the buckle **22** toward the end of the strap **20** without removing the buckle **22** from the strap **20**. But one must then slide one's boot into the binding **16**. This is often difficult and frustrating because the strap having the buckle **22** may snag on one's boots and gators that are often worn with snowshoes.

SUMMARY

[0006] In one aspect of the invention, a frame for a snowshoe includes a peripheral component that provides traction and maintains the snowshoe's shape when traveling over at least one of the following surfaces: snow, hard-packed snow and ice. The peripheral component includes a length, a height orthogonal to the length, and a width orthogonal to the height and at least two times shorter than the height at all locations along the height. With a width that is at least 2 times shorter than the height, the peripheral component can provide a contact surface on hard-packed snow or ice that is less than the contact surface provided by conventional snowshoe frames, and thus provide traction. And the peripheral component can prevent the snowshoe from substantially deforming when one uses the snowshoe to travel over at least one of the following surfaces, snow, hard-packed snow and ice. In addition, the peripheral component allows the frame to be lighter than conventional snowshoe frames.

[0007] In another aspect of the invention, the frame may include a cross-member component to support the peripheral component. The cross-member component may extend from a first portion of the peripheral component toward a second portion of the peripheral component. Alternatively or additionally, the frame may include a stiffener that may include a curved region of the peripheral component to stiffen the peripheral component.

[0008] In yet another aspect of the invention, a binding for a snowshoe includes a strap, and a retention element coupleable with the strap to fasten the snowshoe to a boot. The retention element includes a body defining a main passage in which the strap is disposed when coupled with the retention element, an access passage through which the strap passes to enter the main passage, and a locking element to secure the strap to the retention element. With the access passage, the strap may be easily inserted into the main passage with a gloved hand to couple the retention element with the strap.

BRIEF DESCRIPTION OF THE FIGURES

[0009] **FIG. 1** is a perspective view of a conventional snowshoe.

[0010] **FIG. 2** is a cross-section of a portion of the frame and deck incorporated in the snowshoe of **FIG. 1**.

[0011] **FIG. 3***a* is a perspective, partially exploded view of a snowshoe incorporating a frame and a binding according to an embodiment of the invention.

[0012] **FIG. 3***b* is a perspective view of an anchor incorporated in the binding in **FIG. 3***a*, according to an embodiment of the invention.

[0013] **FIG. 3***c* is a cross-sectional view of the anchor in **FIG. 3***b*, according to an embodiment of the invention.

[0014] **FIG. 4** is a perspective view of the frame incorporated in the snowshoe of **FIG. 3**, according to an embodiment of the invention.

[0015] **FIG. 5** is a side view of the snowshoe in **FIG. 3**.

[0016] **FIG. 6** is a plan view of a deck clip incorporated in the snowshoe of **FIG. 3**.

[0017] **FIG. 7** is a perspective view of a frame according to another embodiment of the invention.

DETAILED DESCRIPTION

[0018] The following discussion is presented to enable one skilled in the art to make and use the invention. Various modifications to the disclosed embodiments will be readily apparent to those skilled in the art, and the generic principles herein may be applied to other embodiments and applications without departing from the spirit and scope of the present invention as defined by the appended claims. Thus, the present invention is not intended to be limited to the embodiments shown, but is to be accorded the widest scope consistent with the principles and features disclosed herein.

[0019] **FIG. 3** is a perspective, partially exploded view of a snowshoe **30** incorporating a frame **32** and a binding **34** according to an embodiment of the invention. The frame **32** provides traction and maintains the snowshoe's shape when traveling over at least one of the following surfaces (not shown): snow, hard-packed snow and ice. Thus, one may use the snowshoe **30** to traverse terrain that includes at least one of these surfaces. For example, one may use the snowshoe **30** to traverse across an icy slope of a hill, to ascend an icy slope of a hill, or to descend an icy slope of a hill. The binding **34** (discussed in greater detail elsewhere in conjunction with **FIG. 3**) includes a strap **36** and a retention element **40** that allows one to couple the strap **36** with the retention element **40** and to uncouple the strap **36** from the retention element **40**, without removing one's gloves. Thus, one may easily fasten and release the snowshoe **30** to and from one's boot.

[0020] The frame **32** includes a peripheral component **42** having a geometry (discussed in greater detail in conjunction with **FIG. 4**) that provides a contact surface **44** on hard-packed snow or ice that is less than the contact surface provided by conventional snowshoe frames, and thus provides traction. In addition, the peripheral component's geometry prevents the snowshoe **30** from substantially deforming when one uses the snowshoe **30** to traverse snowy or icy terrain. The frame **32** may also include a cross-member component **46** (discussed in greater detail in conjunction with **FIG. 4**) to support the peripheral component **42**, or the frame **32** may not. Alternatively or additionally, the frame **32** may include a stiffener (not shown but discussed in greater detail in conjunction with **FIG. 7**) to stiffen the peripheral component **42**; or the frame **32** may not.

[0021] The strap **36** of the binding **34** is couplable with the retention element **40** to fasten the snowshoe **30** to a boot. The retention element **40** includes a body **48** that defines a main passage **50** in which the strap **36** is disposed when the strap **36** is coupled with the retention element **40**; an access passage **52** through which the strap **36** may pass when one inserts the strap **36** into the main passage **50**, and a locking element **54** to secure the strap **36** to the retention element **40**.

[0022] In one embodiment, the binding **34** may encircle a portion of one's boot to fasten the snowshoe **30** to the boot. The binding **34** may include a matt **56**, a first strap **36***a* that extends from the matt **56** and a second strap **36***b* that also extends from the matt **56**. The binding **34** may also include a first retention element **54***a* that may be coupled with the strap **36***a* to fasten the snowshoe **30** to a boot, and a second retention element **54***b* that may be coupled with the strap **36***b* to fasten the snowshoe **30** to a boot. Each retention element **54***a* and **54***b* may include a respective body **48***a* and **48***b* that includes a hook and from which a respective locking element **54***a* and **54***b* extends.

[0023] In operation, one may fasten the snowshoe **30** to one's boot by positioning the straps **36***a* and **36***b* to extend away from their respective retention element **40***a* and **40***b*. Then, one may place one's boot into the binding by stepping onto the matt **56**. Next, one may insert the strap **36***a* through the access passage **52**A of the retention element **40***a* to position the strap **36***a* in the main passage **50**A. Next, one may pull on the end **57***a* of the strap **36***a* to tighten the strap **36***a* and matt **56** around a portion of one's boot. Then, one may insert the locking element **54**A through a hole **58** in the strap **36***a* to secure the strap **36***a* to the retention element **40***a* as shown by the coupling of the strap **36***b* and retention element **40***b* in **FIG. 3**. With the locking element **54**A extending through a hole **57** in the strap **36***a*, the locking element **54***a* prevents the strap **36***a* from sliding relative to the retention element **40***a*. To release the strap **36***a* from the retention element **40***a*, one withdraws the locking element **54**A from the hole **57** and removes the strap **36***a* from the main passage **50**A. The strap **36***b* and retention element **40***b* may also be coupled and uncoupled in a similar manner to fasten and release the snowshoe **30** to one's boot.

[0024] Referring to **FIGS. 3***b* and **3***c* as well as **FIG. 3***a*, the binding **34** may also include an anchor **144** to fasten the strap **36***a* to the matt **56**. The anchor **144** helps position the strap **36***a* to extend away from the retention element **40***a*, and thus facilitates fastening and releasing one's boot from the snowshoe as discussed above. In addition, the anchor **144** allows one to easily adjust the length of the strap **36***a* that one may use to couple with the retention element **40**. In one embodiment, the anchor **144** includes a first passage **148**, a second passage **150** and a protrusion **152** to prevent the strap **36***a* from moving in the X direction. To fasten the strap **36***a* to the matt **56**, one inserts the end **146***a* through the first passage **148**, around the protrusion **152** and through the second passage **150**. Then, one aligns the protrusion **152** with a desired one of the strap's holes **58** and inserts the protrusion **152** into the hole **58**. With the protrusion inserted into the hole **58** the strap **36***a* is prevented from moving in the X direction. The binding **34** may include additional anchors **144** to fasten respective other straps, such as strap **36***b*.

[0025] Still referring to **FIG. 3**, the snowshoe **30** may also include a deck **60** to buoy the snowshoe **30** on a surface of snow. In one embodiment, the deck **60** may be made of any

desired material and may be coupled with the peripheral component **42** using any desired fastening technique. For example, the deck **60** may be made of a flexible material such as urethane-coated nylon or other plastic coated cloths, and deck clips **62** (discussed in greater detail in conjunction with **FIG. 6**) may couple the deck **60** with the peripheral component **42**. In other embodiments, the deck **60** may be made of a stiff material such as hard plastic or metal, and conventional fasteners such as rivets, bolts or adhesives may couple the deck **60** with the peripheral component **42**.

[**0026**] The snowshoe **30** may also include a crampon **64** to improve the snowshoe's traction and to provide a mount for the binding **34**. In one embodiment, the crampon **64** may include a protrusion **66** to contact the surface of the terrain. The crampon **64** may also be pivotally mounted to the cross-member component **46** (discussed in greater detail in conjunction with **FIG. 4**), and the binding **34** may be mounted to the crampon **64** using any desired fastening technique. For example, the binding **34** may be mounted to the crampon **64** with rivets **68**. In other embodiments, the crampon may be pivotally mounted to the deck **60** using any desired fastening technique such as a strap. This may be desirable when the deck **60** is stiff to reduce weight. Also, in other embodiments, the binding **34** may be fastened with removable fasteners, such bolts and nuts, to allow one to replace the binding **34** with a similar one when the binding **34** is damaged or with a different binding as desired. When pivotally mounted to the cross-member component **46**, the crampon **64** and binding **34** may rotate relative to the cross-member component **46** between two positions (discussed in greater detail in conjunction with **FIG. 5**) to allow one's foot to rotate relative to the snowshoe **30** as one walks. Thus, much of the frame's contact surface **44** can remain in contact with the surface of the terrain while the snowshoe **30** bears one's weight.

[**0027**] Still referring to **FIG. 3**, the snowshoe **30** may include a televator **70** to help one ascend a hill. In one embodiment, the televator **70** may include a bar **72** that may be pivotally fastened to the peripheral component **42** and held in an extended position (not shown in **FIG. 3** but shown in **FIG. 5**) where the bar **72** is suspended above the deck **60**. The bar **72** may be made of any desirable material capable of supporting one's weight and may be pivotally fastened to the peripheral component **42** using any desired fastening technique also capable of supporting one's weight. For example, the bar **72** may be made of spring steel, and the televator **70** may include a televator mount **74** that pivotally retains the bar **72**, holds the bar **72** in the extended position when the bar **72** is so positioned, and is fastened to the peripheral component **42** using rivets **76**. In the extended position, the bar **72** may support the heel of one's foot above the deck **60** so that one's foot may form an angle relative to the deck **60**. Thus, the televator **70** prevents the heel of one's boot from contacting the deck **60** when ascending a hill, and therefore reduces strain commonly experienced in one's calf muscles when ascending the hill.

[**0028**] **FIG. 4** is a perspective view of the frame **32** incorporated in the snowshoe **30** of **FIG. 3**, according to an embodiment of the invention. The frame **32** includes the peripheral component **42** to provide the snowshoe traction and to maintain the snowshoe's shape when traveling over at least one of the following surfaces (not shown): snow, hard-packed snow and ice. The frame **32** also includes a cross-member component **46** that extends from a first portion **80** of the peripheral component **42** toward a second portion **82** of the peripheral component **42** to support the peripheral component **42**. The peripheral component **42** has a length that is measured in the direction indicated by the arrow **84**, a height that is measured in the direction indicated by the arrow **86** and a width that is measured in the direction indicated by the arrow **88**. The height is orthogonal to the length, and the width is orthogonal to and intersects the height. To provide traction on hard-packed snow or ice while preventing the snowshoe **30** from substantially deforming when used to traverse such surfaces, the width is at least 2 times shorter than the height at all locations **90** (only three locations are shown for clarity but an infinite number exist) along the height. The cross-member component **46** may or may not have the same ratio of width to height.

[**0029**] The width may be any distance desired and may vary at each location along the height of a cross-section **92** of the peripheral component **42** as desired, or remain constant. In addition, the width of many similar cross-sections of the peripheral component **42**, each perpendicular to the length, may vary relative to each other as desired or not. For example, in one embodiment, the width may be 0.090 inches and substantially the same along the height of the cross-section **90** and throughout the length of the peripheral component **42**, and the height may range from 0.59 inches to 1.1 inches. With the peripheral component **42** having substantially the same width throughout the length, the peripheral component **42** may be inexpensively manufactured by cutting or stamping the component **42** from a sheet of material, and then bending the component **42** into the shape desired. In other embodiments, the width may increase as its location progresses along the height and in the direction **86**. This may be desirable to further reduce the area of the contact surface **44** to improve traction on an icy surface. Additionally, in other embodiments, the width along the height of one cross-section **92** may be different than the width along another cross-section (not shown) to locally increase the stiffness of the peripheral component **42** to correspond to a local increase in the force experienced.

[**0030**] Still referring to **FIG. 4**, the peripheral component **42** may be made from any desired material capable of withstanding the loads exerted on it during use and may be shaped as desired to form the snowshoe **30**. For example, in one embodiment the peripheral component **42** may be formed from aluminum 7075-T6 and shaped like a rectangle to define an interior region **94** of the frame **32** and a perimeter of the snowshoe **30**. Thus, the peripheral component **42** can protect the edge of the deck **60** (**FIG. 3**) which may be desired when traversing through shrubs or a crust of ice that a portrion of the frame **32** may break through. In other embodiments, the frame **32** may be made from other metals or hard, durable plastic and may be shaped like a teardrop. Additionally, in other embodiments the peripheral component **42** may be made from any desired composite materials, such as carbon fibers and epoxy.

[**0031**] Still referring to **FIG. 4**, the frame **32** may include one or more cross-member components **42** to support the peripheral component **42**. For example, in one embodiment the frame **32** may include a first cross-member component **96** and a second cross-member component **98** each extending from the first portion **80** to the second portion **82**. Each cross-member component **96** and **98** may be located in the

interior region **94** to also support one's foot, and may be fastened to the peripheral component **42** with rivets **100**. The first cross-member component **96** may also be coupled with the crampon **64** (further discuss elsewhere in conjunction with **FIG. 4**) and support the ball of one's foot, and the second cross-member component **98** may support the heel of one's foot. The first cross-member component **96** may include a first end **102** that may be fastened to the first portion **80** of the peripheral component **42**, and a second end **104** that may be fastened to the second portion **82** of the peripheral component **42**. The second cross-member component **98** may include a first end **106** that may be fastened to the first portion **80**, and a second end **108** that may be fastened to the second portion **82**. The ends **102**, **104**, **106** and **108** are configured to absorb energy that may be generated when the peripheral component flexes under the strain of one's weight and/or activity. Each cross-member component **96** and **98** may be made from any desired material, such as plastic or metal like steel.

[**0032**] Still referring to **FIG. 4**, in one embodiment, the second cross-member component **98** may also include a heel stabilizer **110** to hold the heel of one's boot to prevent the boot from sliding relative to the cross-member component **98**. This may be desirable when traversing across a slope of a hill. The heel stabilizer **110** may include a protrusion **112** to elastically deform or penetrate one's boot heel to prevent the heel from sliding relative to the second cross-member component **98**. If the second cross-member **98** incorporates the heel stabilizer **110**, then the deck **60** in **FIG. 3** may include a slot to allow the protrusions of the heel stabilizer **110** to contact one's boot heel.

[**0033**] Still referring to **FIG. 4**, to improve traction, the peripheral component **42** may include a traction element **114**, and the cross-member component **46** may include a cross-member traction element **116**. The traction element **94** may extend as desired along the length of the peripheral component **42**. For example, in one embodiment, the traction element **114** extends along the first and second portions **80** and **82**, respectively, and may include one or more protrusions **118** (only 11 referenced in **FIG. 4** for clarity) to focus pressure on an icy or hard-packed surface. Each cross-member component **96** and **98** may include a respective cross-member traction element **116** that may extend most of the distance between the first portion **80** and the second portion **82**. Each cross-member traction element **116** may include one or more protrusions **120** (only 4 referenced in **FIG. 4** for clarity) to focus pressure on an icy or hard-packed surface.

[**0034**] The pressure is typically generated by one's weight while standing or walking on the snowshoe **30**. By focusing the pressure, each protrusion that contacts an icy surface may locally melt the ice under the protrusion—much like ice skates do—to penetrate the icy surface, or may penetrate the icy surface without locally melting the ice—much like ice picks do. Once the icy surface is penetrated the ice surrounding the tip of the protrusion may prevent the frame from slipping relative to the surface. If the surface is hard-packed snow, each protrusion that contacts the surface may penetrate the surface without locally melting the snow.

[**0035**] Still referring to **FIG. 4**, the crampon **64** may be mounted to the frame **32** to improve the snowshoe's traction. In one embodiment, the crampon **64** includes one or more protrusions **122**, may be pivotally mounted to the first cross-member component **96** via a crampon mount **124** that may be fastened to the first cross-member component **96** with any desired fastening technique, such as rivets. The crampon mount **122** may include two flanges **126**, each having a hole (omitted for clarity) that receives a respective one of the pins **128**. The crampon **64** may include a body **130** that includes two flanges **132**, each corresponding with one of the crampon mount flanges **126**, and each having a hole (omitted for clarity) that receives a respective one of the pins **128** to pivotally mount the crampon **64** to the first cross-member component **96**.

[**0036**] When pivotally mounted to the first cross-member component **96**, the crampon **64** may rotate relative to the first cross-member component **96** between two positions (discussed in greater detail in conjunction with **FIG. 5**) to allow one's foot to rotate relative to the snowshoe **30** as one walks. To prevent the crampon from rotating too far, the crampon **64** includes a crampon stop **134**. In one embodiment, the crampon **64** includes two crampon stops **134**, each extending from a respective one of the flanges **132**. Thus, each crampon stop **134** rotates relative to the first cross-member component **96** as the crampon **64** rotates. To prevent the crampon **64** from rotating past a desired limit (discussed in greater detail in conjunction with **FIG. 5**), one or both crampon stops **134** contacts the crampon mount **124** and/or the first cross-member component **96** (shown in phantom in **FIG. 5**).

[**0037**] **FIG. 5** is a side view of the snowshoe **30** in **FIG. 3**, according to an embodiment of the invention. The binding **34** may rotate relative to the first cross-member component **96** (**FIG. 4**), as shown in the phantom line and solid line illustrations of an embodiment of the binding **34**, to allow one's foot to rotate relative to the snowshoe **30** as one walks. The solid line illustration of the binding **34** shows the position of the binding **34** when one stands on the snowshoe **30**. In this position, one's weight is supported by both cross-member components **96** and **98** (**FIG. 4**). The phantom illustration of the binding **34** shows the position of the binding **34** at its maximum rotation away from the second cross-member component **98**. In this position, one or both of the crampon stops **134** (only one shown for clarity) contacts the crampon mount **124** (**FIG. 4**) and/or the first cross-member component **96** to prevent the crampon **64** from further rotating away from the second cross-member component **98**.

[**0038**] The angle α between the two positions may be any angle desired. In one embodiment, the angle α may be 67.50 to allow one to better control the snowshoe **30** when one lifts the snowshoe **30** off a surface to move and relocate the snowshoe **30** on the surface for a next step. With α at 67.50 the crampon stop **134** may also prevent the tip **136** of the snowshoe **30** from hitting one's shin when one lifts the snowshoe **30** off a surface to take another step.

[**0039**] Still referring to **FIG. 5**, the televator **70** may rotate relative to the peripheral component **42** as shown by the phantom line and solid line illustrations of an embodiment of the televator **70**. The solid line illustration of the televator **70** shows the position of the televator **70** when one traverses flat or substantially flat terrain. In this position, the televator **70** is located on or just above the deck **60** (not shown in **FIG. 5**; shown in **FIG. 3**) to keep the televator **70** from interfering

with the rotation of one's foot relative to the first cross-member component **96** as one traverses a surface. The phantom line illustration of the televator **70** shows the position of the televator **70** when one ascends a slope of a hill. In this position, the televator **70** is extended above the deck **60** to support the one's heel above the deck and prevent the heel from further moving toward the second cross-member component **98**. Thus, the televator **70** may reduce the strain experienced in one's a calf muscles when ascending a slope of a hill.

[**0040**] **FIG. 6** is a plan view of one of many deck clips **62** incorporated in the snowshoe **30** of **FIG. 3**, according to an embodiment of the invention. The deck clip **62** couples the deck **60** with the peripheral component **42** in the interior region **94**. Thus, the peripheral component **42** may provide the deck **60** additional protections. For example, if the deck **60** overlaps the peripheral component **42** similar to the deck **12** (**FIG. 2**) overlapping the frame **14** (**FIG. 2**), then the deck **60** could be damaged by contact with a snowshoe fastened to one's other foot, with shrubs kicked with the snowshoe **30** or other similar types of contact.

[**0041**] The deck clip **62** may be made from any desired material and may be configured as desired to couple the deck **60** within the interior region **94**. In one embodiment, the deck clip **62** may be made from aluminum 7075-T6 and may include an end **136** that the deck **60** may be fastened to, and a head **138** that couples the end **136** with the peripheral component **42**. The peripheral component **42** may include a slot **140** that is sized to permit the end **136** to be inserted into the interior region **94** through the slot **140**, but to not permit the head **138** to be inserted into the region **94** through the slot **140**. Thus, when the end **136** extends through the slot **140** into the interior region **94**, the head **138** prevents the deck clip **62** from passing through the slot. The deck **60** may be fastened to the end **136** using any desired fastening technique such as a rivet **142** or other permanent type fasteners, or a removable type fastener.

[**0042**] Other embodiments of coupling the deck **60** with the peripheral component **42** are contemplated. For example, the deck **60** may be tied to the peripheral component **42**. In one embodiment, the deck **60** may include a tab that one may extend through the slot **140** and then over a top portion of the peripheral component **42** to be tied to its self. In another embodiment, the peripheral component **42** may include two slots and the deck **60** may include a tab that one may extend through both slots and then force the slots closed to pinch the tab and thus couple the deck **60** with the peripheral component **42**.

[**0043**] **FIG. 7** is a perspective view of a frame **160** according to another embodiment of the invention. The frame **160** is similar to the frame **32** discussed elsewhere herein but does not include a cross-member component (**46** in **FIGS. 3 and 4**). The frame **160** does include a peripheral component **162**, which is similar to the peripheral component **42** discussed elsewhere herein, to provide a snowshoe (not shown) traction and to maintain the snowshoe's shape when traveling over at least one of the following surfaces (not shown): snow, hard-packed snow and ice. The peripheral component **162** may be mounted to a deck **164** that is stiff to support the peripheral component **162**; or the peripheral component **160** may not. Additionally or alternatively, the peripheral component **162** may include a stiffener **166** to stiffen the peripheral component **162** or the peripheral component **162** may not.

[**0044**] If the peripheral component **162** is mounted to a stiff deck **164**, the deck **60** may be made of any desired material and may be coupled with the peripheral component **162** using any desired fastening technique. For example, the deck **164** may be made of any desired metal such as aluminum and steel, or any desired hard plastic, and deck clips **168** similar to the deck clips **62** in **FIGS. 3 and 6** may couple the deck **164** with the peripheral component **162**. In other embodiments, the deck **164** may be made of a flexible material such as urethane coated nylon cloth, and conventional fasteners such as rivets, bolts or adhesives may couple the deck **164** with the peripheral component **162**. If the peripheral component **162** includes a stiffener **166**, the stiffener may be shaped as desired, and formed as a part of the peripheral component **162** or mounted to the peripheral component **162**. For example, in one embodiment, the peripheral component **162** may include a stiffener **166** that is formed as a part of the peripheral component **162**. The stiffener **166** may have a cross-section that includes a "U" shape and may extend in a direction along the peripheral component's length. In other embodiments, the stiffener may have a cross-section that includes other shapes such as a "V", and may extend in other directions, such as along the peripheral component's height or a combination of the component's height and length. Alternatively or additionally, the stiffener may be a piece of material that is adjacent and mounted to the peripheral component **162** to stiffen the frame **160**. Furthermore, the peripheral component **162** may include more than one stiffener **166**.

What is claimed is:

1. A frame for a snowshoe having a shape, the frame comprising:

a peripheral component having a length, a height orthogonal to the length, and a width orthogonal to and intersecting the height and at least two times shorter than the height at all locations along the height, wherein the peripheral component provides traction when the frame contacts at least one of the following surfaces: snow, hard-packed snow and ice, and wherein the peripheral component maintains the snowshoe's shape when a person uses the snowshoe to travel across at least one of the following surfaces: snow, hard-packed snow and ice; and

a cross-member component that extends from a first portion of the peripheral component toward a second portion of the peripheral component to support the peripheral component.

2. The frame of claim 1 wherein the width is substantially the same at all locations along the height.

3. The frame of claim 1 wherein the width is substantially the same at all locations along the height of each cross-section of the peripheral component that is perpendicular to the length.

4. The frame of claim 1 wherein the peripheral component defines a perimeter of the snowshoe.

5. The frame of claim 1 wherein the width is 0.090 inches.

6. The frame of claim 1 wherein the width is 0.090 inches and the height is at least 0.59 inches.

7. The frame of claim 1 wherein the peripheral component includes a traction element to improve the frame's traction.

8. The frame of claim 1 wherein the peripheral component includes a traction element having a protrusion to focus pressure on at least one of the following surfaces: snow, hard-packed snow and ice, to improve the frame's traction.

9. The frame of claim 1 wherein the cross-member component includes a cross-member traction element to improve the frame's traction.

10. The frame of claim 1 wherein the cross-member component includes a cross-member traction element having a protrusion to focus pressure on at least one of the following surfaces: snow, hard-packed snow and ice, to improve the frame's traction.

11. The frame of claim 1 wherein the cross-member component is operable to receive a crampon to improve the frame's traction.

12. The frame of claim 1 wherein the cross-member component extends from the first portion of the frame through an interior region defined by the peripheral component to an opposing second portion of the frame.

13. The frame of claim 1 wherein the cross-member component includes a first end attached to the first portion of the peripheral component, and a second end attached to the second portion of the peripheral component.

14. The frame of claim 1 wherein the cross-member component includes a heel stabilizer to hold the heel of a boot to prevent the boot from sliding relative to the cross-member component.

15. The frame of claim 1 wherein the cross-member component includes a heel stabilizer having a protrusion operable to deform a portion of a boot's sole to prevent the boot from sliding relative to the cross-member component.

16. The frame of claim 1 wherein the frame includes two cross-member components to support the peripheral component:

a first cross-member component that extends from the first portion of the frame through an interior region defined by the peripheral component to the second portion of the frame, that includes a cross-member traction element to improve the frame's traction, and that is operable to receive a crampon to improve the frame's traction, and

a second cross-member component that also extends from the first portion of the frame through the interior region to the second portion of the frame, and that includes a cross-member traction element to improve the frame's traction, and a heel-stabilizer to hold the heel of a boot to prevent the boot from sliding relative to the second cross-member component.

17. A snowshoe comprising:

a frame including:

a peripheral component having a length, a height orthogonal to the length, and a width orthogonal to and intersecting the height and at least two times shorter than the height at all locations along the height, wherein the peripheral component provides traction when the frame contacts at least one of the following surfaces: snow, hard-packed snow and ice, and wherein the peripheral component maintains the snowshoe's shape when a person uses the snowshoe to travel across at least one of the following surfaces: snow, hard-packed snow and ice, and

a cross-member component that extends from a first portion of the peripheral component toward a second portion of the peripheral component to support the peripheral component;

a deck coupled with the frame and operable to buoy the snowshoe on a surface of snow; and

a binding operable to fasten a boot to the snowshoe.

18. The snowshoe of claim 17 wherein the snowshoe is operable to traverse across an icy slope of a hill.

19. The snowshoe of claim 17 wherein the deck includes a flexible material.

20. The snowshoe of claim 19 wherein the flexible material includes nylon cloth coated with urethane.

21. The snowshoe of claim 17 further comprising a deck clip operable to couple the deck with the frame.

22. The snowshoe of claim 21 wherein the deck clip extends from the peripheral element into an interior region defined by the peripheral element, and includes an end located in the interior region operable to fasten the deck.

23. The snowshoe of claim 17 further comprising a crampon to improve the snowshoe's traction.

24. The snowshoe of claim 17 further comprising a crampon to improve the snowshoe's traction, wherein the crampon is mounted to the cross-member component and pivotable relative to the cross-member component, and includes a crampon stop operable to stop the rotation of the crampon.

25. The snowshoe of claim 17 wherein the frame includes two cross-member components to support the peripheral element:

a first cross member that extends from the first portion of the frame through an interior region defined by the peripheral element to the second portion of the frame, and includes a cross-member traction element to improve the snowshoe's traction, and that has a crampon mounted to it to improve the snowshoe's traction, and

a second cross member that also extends from the first portion of the frame through the interior region to the second portion of the frame, and that includes a cross-member traction component operable to improve the second cross member's traction, and a heel stabilizer component operable to hold the heel of a boot from sliding relative to the second cross-member component.

26. The snowshoe of claim 17 further comprising a televator operable to suspend a heel of the foot above the frame.

27. The snowshoe of claim 17 further comprising a televator mounted to the peripheral element and pivotable relative to the peripheral element to an extended position to suspend a heel of the foot above the frame.

28. The snowshoe of claim 17 wherein the binding includes a strap and a retention element to fasten and release the boot to and from the snowshoe, wherein the retention element is operable to fasten and release the strap without removing a glove from a hand.

29. The snowshoe of claim 28 wherein the retention element is separable from the strap to allow one to fasten the boot to the snowshoe by stepping between the strap and the retention element.

30. A method for moving across a surface:

mounting a snowshoe to a foot;

placing the snowshoe on a surface;

supporting one's weight with a peripheral component and a cross-member component of a frame of the snowshoe, wherein the peripheral component has a length, a height orthogonal to the length, and a width orthogonal to and intersecting the height and at least two times shorter than the height at all locations along the height; and

traversing the surface.

31. The method of claim 30 wherein the surface includes snow.

32. The method of claim 30 wherein the surface includes ice.

33. The method of claim 30 wherein the surface includes hard-packed snow.

34. The method of claim 30 wherein mounting the snowshoe to the foot includes fastening a strap of a binding with a retention element of the binding.

35. The method of claim 34 wherein fastening the strap with the retention element includes inserting the strap through an access passage of the retention element to dispose the strap in a main passage of the retention element.

36. The method of claim 30 wherein supporting one's weight includes improving the traction of the snowshoe with a traction element of the peripheral component.

37. The method of claim 36 wherein improving the traction of the snowshoe includes:

exerting pressure on the surface with the traction element, and

focusing the exerted pressure with a protrusion of the traction element.

38. The method of claim 30 wherein supporting one's weight includes improving the traction of the snowshoe with a cross-member traction element of the cross-member component.

39. The method of claim 38 wherein improving the traction of the snowshoe includes:

exerting pressure on the surface with the cross-member traction element, and

focusing the exerted pressure with a protrusion of the cross-member traction element.

40. The method of claim 30 wherein supporting one's weight includes improving the traction of the snowshoe with a crampon mounted to the frame.

41. The method of claim 30 wherein supporting one weight includes maintaining the snowshoe's shape when traversing at least one of the following surfaces: snow, hard-packed snow and ice.

42. The method of claim 30 wherein traversing the surface includes at least one of the following: traversing across a slope of a hill, ascending a slope of a hill and descending a slope of a hill.

43. The method of claim 41 wherein traversing the surface includes:

pivoting the snowshoe relative to the foot,

lifting the snowshoe above the surface, and

stopping the snowshoe from pivoting beyond a limit with a crampon stop of the crampon.

44. A frame for a snowshoe having a shape, the frame comprising:

a peripheral component having a length, a height orthogonal to the length, and a width orthogonal to and intersecting the height and at least two times shorter than the height at all locations along the height, wherein the peripheral component provides traction when the frame contacts at least one of the following surfaces: snow, hard-packed snow and ice, and wherein the peripheral component maintains the snowshoe's shape when a person uses the snowshoe to travel across at least one of the following surfaces: snow, hard-packed snow and ice.

45. The frame of claim **59** wherein the width is substantially the same at all locations along the height.

46. The frame of claim **59** wherein the width is substantially the same at all locations along the height of each cross-section of the peripheral component that is perpendicular to the length.

47. The frame of claim **59** wherein the peripheral component includes a stiffener to stiffen the peripheral component.

48. The frame of claim **59** wherein the stiffener is formed as a part of the peripheral component.

49. The frame of claim **59** wherein the peripheral component is mountable to a deck that includes solid material to support the peripheral component.

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