United States Patent

Sigl

[15] **3,675,938**

[45] **July 11, 1972**

[54] SKI WITH INCLINED BOOT PLATFORM

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[22] Filed: **July 22, 1970**

[21] Appl. No.: **57,109**

[52] **U.S. Cl.** ..... **280/11.35 C**, 280/11.13 W

[51] **Int. Cl.** **A63c 9/00**

[58] **Field of Search** ..... 280/11.35, 11.13 W, 11.13 S

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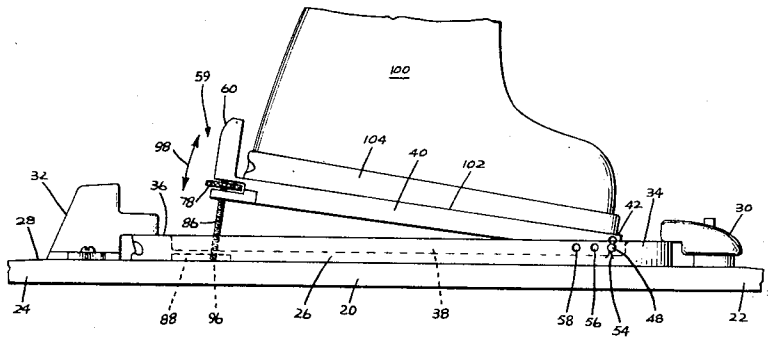
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Assistant Examiner—Milton L. Smith
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[57] **ABSTRACT**

A snow ski having an upwardly and rearwardly inclined boot mounting platform. The platform is preferably mounted on the ski for selective adjustment of its angle of inclination thereby providing varying degrees of forward lean for the skier, and also for selective longitudinal adjustment of its position along the length of the ski.

9 Claims, 13 Drawing Figures



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SHEET 1 OF 4

FIG. 1

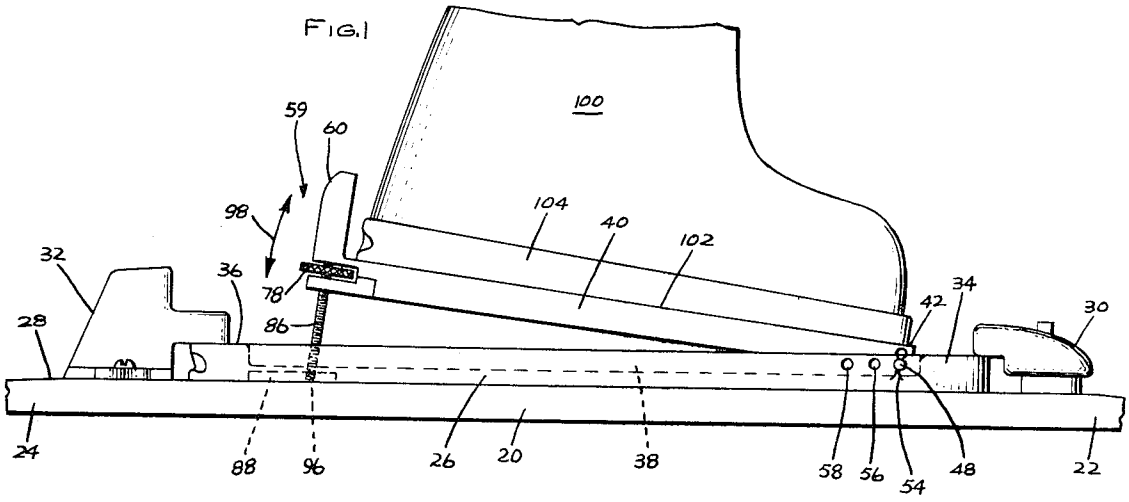


FIG. 2

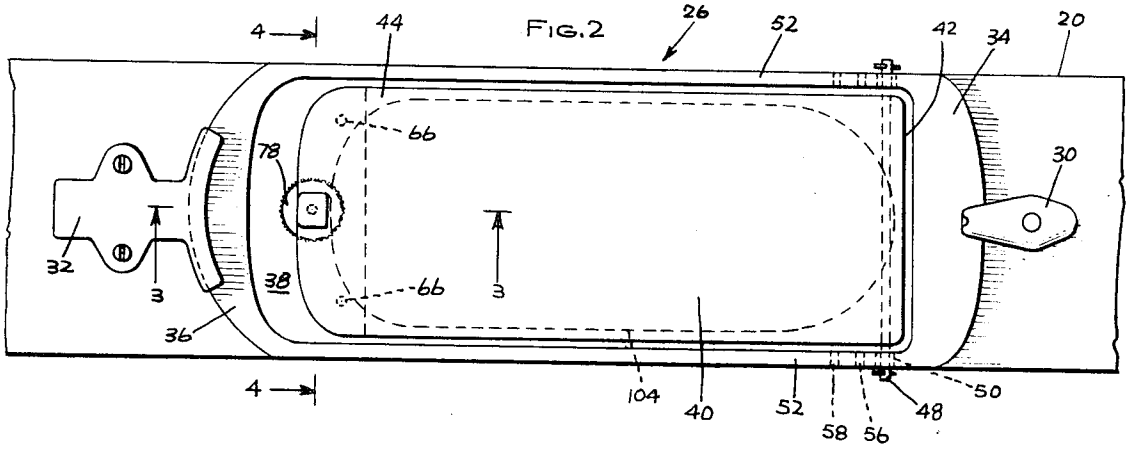
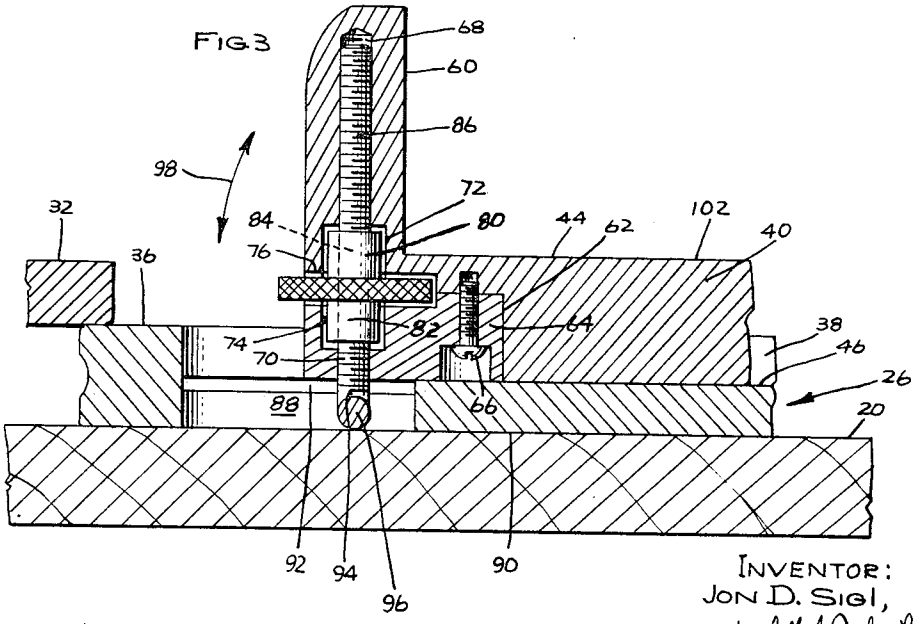


FIG. 3



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FIG. 4

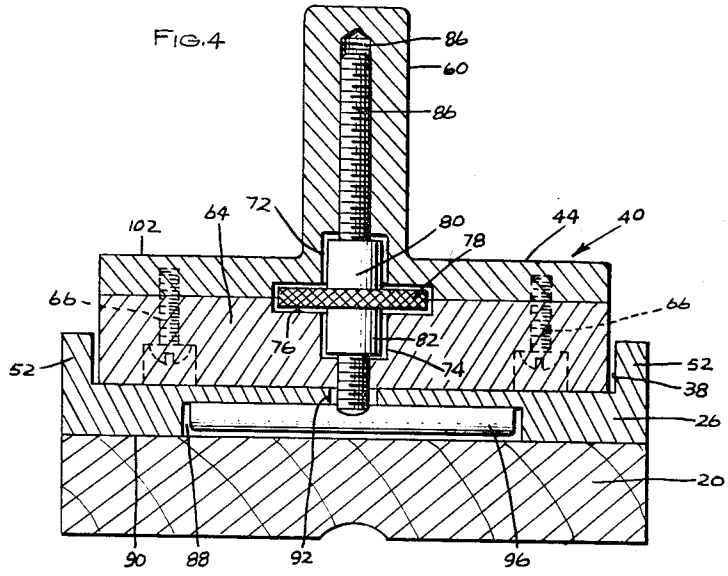


FIG. 5

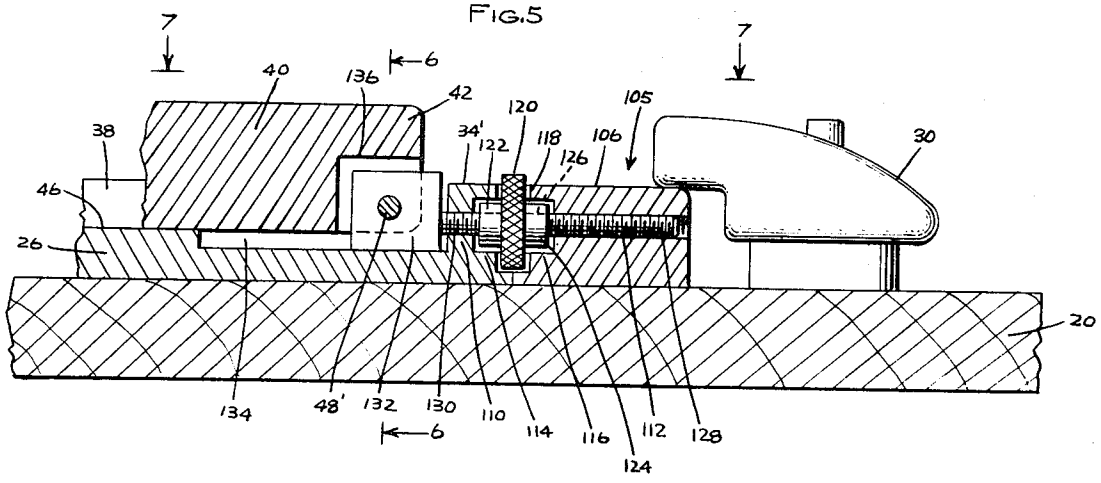
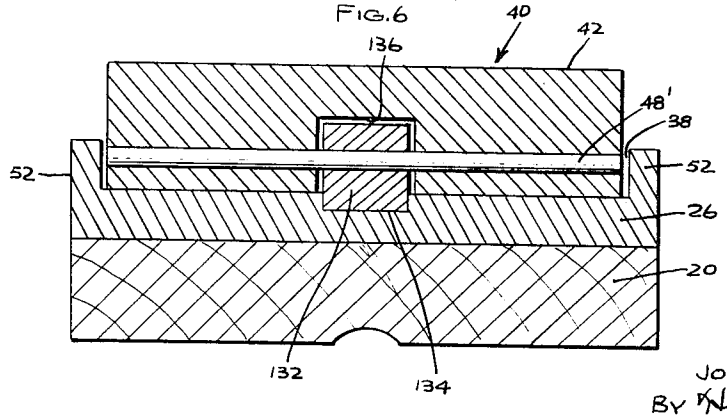


FIG. 6



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FIG. 7

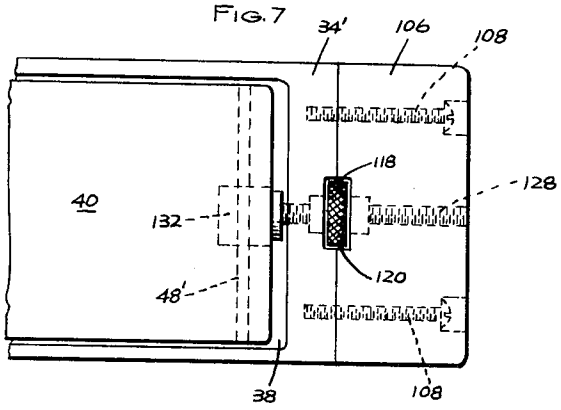


FIG. 8

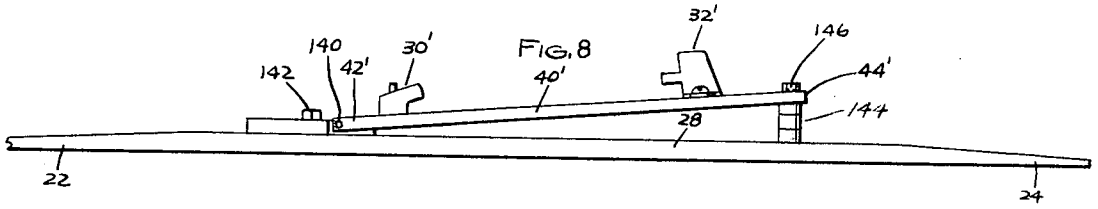


FIG. 9

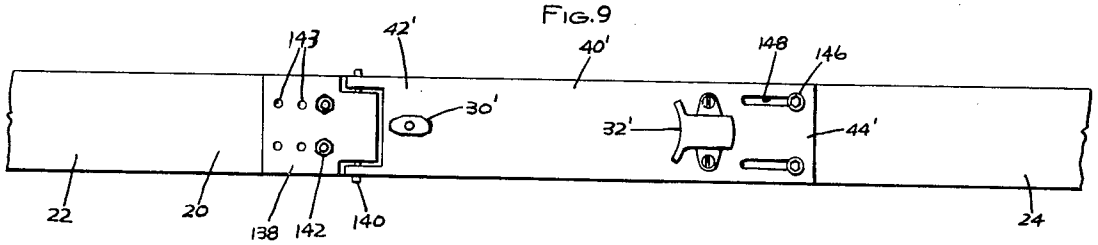


FIG. 10

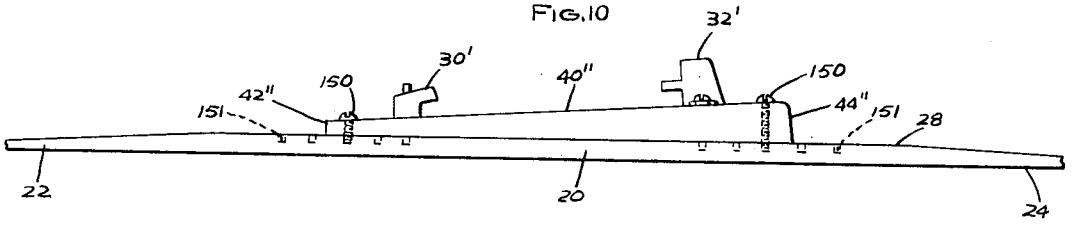
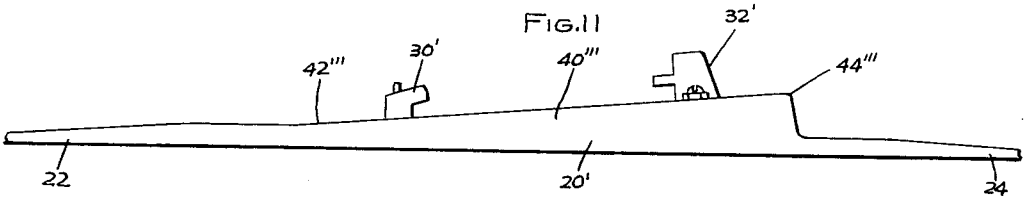


FIG. 11



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FIG. 12

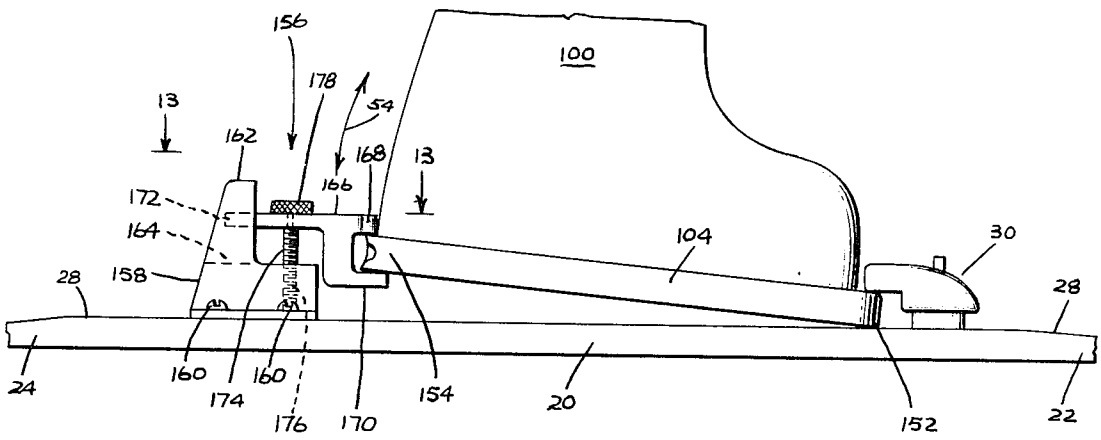
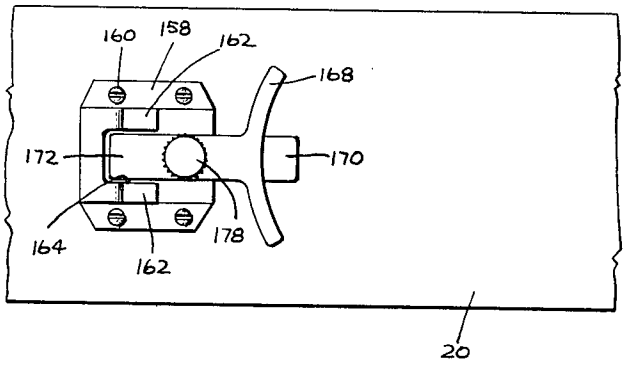


FIG. 13



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SKI WITH INCLINED BOOT PLATFORM

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to snow skis, and more particularly to an inclined boot mounting platform for skis.

2. Description of the Prior Art

Conventional snow skis have a forward or shovel end and a rear or tail end with a boot mounting platform therebetween. Conventionally, boot binding apparatus is mounted on the platform of the ski for releasably engaging the boot and holding the same on the platform. With such conventional ski and boot binding arrangements, the sole of the boot is maintained in abutting engagement with the platform which, in turn, is parallel with the bottom of the ski.

In the art of snow skiing, it is necessary for the skier to lean somewhat forwardly and to have his knees somewhat bent. It is often difficult for a beginning skier to learn the correct leg and knee positions, and even an experienced skier may experience difficulty in maintaining the correct positions. Further the correct angulated leg position tends to be tiring by reason of strain on the Achilles Tendon caused by attachment of the boot to the mounting platform of the ski in a horizontal position.

SUMMARY OF THE INVENTION

In accordance with my invention, there is provided a ski having a boot mounting platform which is inclined upwardly and rearwardly which thus forces the skier to adopt the correct angulated leg and bent knee position. The inclined boot mounting platform thus provides the desired forward leaning stance, and moves the center of gravity of the skier forwardly. In particular, inclination of the platform provides a boot mounting which is less tiring than conventional mountings since the proper skiing stance is provided by inclination of the entire bone structure of the foot and leg, rather than by the use of muscles and tendons. This alleviates tired and strained leg muscles caused by the skier fighting to assume and maintain the forward leaning stance, and chaffed shins caused by pressing forward in the ski boot necks.

The inclined platform also preangulates the skier's knees for proper turns in the parallel position with less exertion. This eliminates the usual "down-up-down" movement of the turn, making the movement merely "up-down," resulting in quicker turns. Further, a mechanical advantage is provided in snow plowing, and for the beginning skier.

In the preferred embodiments, the angle of inclination of the platform is adjustable thus providing varying degrees of forward lean for the skier, and the position of the platform is also adjustable longitudinally along the top surface of the ski. Thus, the user can select various combinations of inclination and longitudinal position of the platform to suit various snow conditions and/or personal preference.

The invention in its broader aspects provides a ski having forward and rear ends and a top surface, and means on the top surface intermediate the ends of the ski for mounting a ski boot thereon, with the sole of the boot being inclined upwardly and rearwardly from its toe end to its heel. In the preferred embodiment, means are provided for selectively varying the inclination of the mounting means with respect to the ski, and also for selectively longitudinally moving the mounting means between selected forward and rearward positions on the ski.

It is accordingly an object of the invention to provide an approved ski.

Another object of the invention is to provide an improved ski having an upwardly and rearwardly inclined boot mounting platform.

A further object of the invention is to provide an improved ski boot mounting.

The above-mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by

reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevational view showing one embodiment of the ski boot platform of the invention;

FIG. **2** is a top view of the embodiment of FIG. **1**;

FIG. **3** is a fragmentary, longitudinal cross-sectional view taken generally along the line **3—3** of FIG. **2**;

FIG. **4** is a transverse cross-sectional view taken generally along the line **4—4** of FIG. **2**;

FIG. **5** is a fragmentary longitudinal cross-sectional view showing a modification of the embodiment of FIG. **1**;

FIG. **6** is a transverse cross-sectional view taken generally along the line **6—6** of FIG. **5**;

FIG. **7** is a fragmentary top view taken generally along the line **7—7** of FIG. **5**;

FIG. **8** is a side view showing another embodiment of the invention;

FIG. **9** is a top view of the embodiment of FIG. **8**;

FIG. **10** is a fragmentary side view illustrating a further embodiment of the invention;

FIG. **11** is a fragmentary side view illustrating yet another embodiment of the invention;

FIG. **12** is a fragmentary side view showing still another embodiment of the invention; and

FIG. **13** is a fragmentary top view taken generally along the line **13—13** of FIG. **12**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIGS. **1–4** of the drawings, there is shown the mounting platform **20** of a conventional snow ski, platform **20** having a forward end **22** which is joined to the forward or shovel end of the ski (not shown) and a rear end **24** which is joined to the rear or tail end of the ski (also not shown).

A base plate member **26** is supported on the top surface **28** of platform **20** in abutting engagement therewith, and is releasably secured thereto by conventional front and rear ski boot binding devices **30, 32** which respectively engage the forward and rear ends **34, 36** of base plate member **26**. Devices **30, 32** do not, per se, form a part of the present invention, and any conventional, commercially available ski boot binding devices may be employed.

Base plate member **26** has an elongated recess **38** formed therein extending between forward and rear ends **34, 36**. A platform member **40** is provided having forward and rear ends **42, 44**. Platform member, in its lowermost position, is received within recess **38** and is supported upon the bottom surface **46** thereof (FIGS. **2–4**). Forward end **42** of platform member **40** is pivotally connected to base plate member **26** adjacent its forward end by means of removable pin **48** extending transversely through a suitable opening in platform member **40** (not shown) and openings **50** in side walls **52** which bound the sides of recess **38**. Pin **48** may be retained in position by a suitable removable cotter pin **54**. Other pairs of suitable pin-receiving openings (shown here as being two in number) **56, 58** are provided in side walls **52** spaced rearwardly from openings **50** for selectively removably receiving pin **48** thereby to provide for selective forward and rearward positioning of platform member **40**.

The angle of inclination of platform member **40** is infinitely variable by mechanism **59**, now to be described. Rear end **44** of platform member **40** has a post **60** extending upwardly therefrom. Rear end **44** of platform member **40** also has a cut-out portion **62** formed in its lower surface. A block **64** is removably seated in cut-out portions **62** and is secured therein by means of suitable threaded fasteners **66**. Post **60** and block **64** respectively have vertically aligned openings **68, 70** formed therein respectively terminating in enlarged facing portions **72, 74**. The lower and upper surfaces of rear end **44** of platform member **40** and block **64** respectively define an opening

76 for receiving adjusting wheel 78 which has a portion extending rearwardly from opening 76 and which preferably has its peripheral surface knurled as shown. Wheel 78 has hub portions 80, 82 respectively seated in enlarged portions 72, 74 of openings 68, 70. Wheel 78 and its hub portions 80, 82 have an internally threaded bore 84 which threadingly receives threaded stud 86. Stud 86 extends upwardly in openings 70, 68.

Base plate member 26 has a recess 88 formed in its bottom surface 90 (FIGS. 3 and 4), and a longitudinal slot 92 communicates between recess 38 and recess 88. The lower end 94 of stud 86 extends downwardly through slot 92 and is secured to transversely extending pin 96 positioned in recess 88. It will be readily understood that stud 86 may be suitably welded or braised to pin 96, or that stud 86 and pin 96 may be integrally formed as a single element as by forging.

It will now be seen that platform member 40 may be pivotally moved about pin 48 so as to raise or lower its rear end 44, as shown by arrows 98, by manual rotation of wheel 78. Thus, rear end 44 of platform member 40 may be selectively elevated above base plate member 26 and top surface 28 of ski platform section 20 so as to provide the desired rearward and upward inclination of platform member 40, as shown in FIG. 1.

A conventional ski boot 100 is secured to upper surface 102 of platform member 40 in any suitable fashion, as by having its sole 104 adhered thereto by suitable adhesive, such as a conventional epoxy adhesive. It will now be seen that the angle of inclination of platform member 40 and boot 100 is infinitely adjustable by means of manual manipulation of wheel 78. It will further be seen that platform member 40 and boot 100 thereon is selectively adjustable between forward and rearward positions by inserting pin 48 in the desired holes 50, 56, 58, the elongated recess 88 which receives pin 96 accommodating this longitudinal adjustment of the position of platform member 40 and boot 100.

Referring now to FIGS. 5, 6 and 7 in which like elements are indicated by like reference numerals and similar elements by primed reference numerals, a modification is shown wherein infinitely variable forward and rearward adjustment of the position of platform member 40 and boot 100 is provided by mechanism 105. Here, forward end 34' of base plate member 26 has a block 106 secured thereto, as by suitable threaded fasteners 108 (FIG. 7). Aligned openings 110, 112 respectively extend through end 34' and block 106, opening 110 communicating with recess 38. Openings 110, 112 respectively have enlarged facing portions 114, 116. The facing surfaces of end 34' and block 106 have a recess 118 formed therein to accommodate knurled wheel 120 which projects beyond the upper surfaces of portion 34' and block 106 (FIG. 5). Wheel 120 has hub portions 122, 124 respectively seated in enlarged opening portions 114, 116 and a threaded bore 126 which threadingly receives stud 128. Stud 128 extends through openings 110, 112.

Inner end 130 of stud 128 is secured to block 132 slideably mounted in longitudinally extending slot 134 formed in the bottom surface 46 of recess 38 of base plate member 26. Block 132 is received within notch 136 in forward end 42 of platform member 40. Pin 48' pivotally connects forward end 42 of platform member 40 to block 132.

It will now be seen that manual rotation of wheel 120 will result in infinitely adjustable forward and rearward movement of block 132 and platform member 40.

Referring now to FIGS. 8 and 9 in which like elements are again indicated by like reference numerals and similar elements by primed reference numerals, here platform member 40' is provided pivotally connected at its forward end 42' to front mounting member 138, as by pin 140. Mounting member 138 is secured to top surface 28 of platform section 20 of the ski adjacent its forward end 22 by means of suitable threaded fasteners 142. A plurality of longitudinally spaced-apart holes 144 provide for selective forward and rearward adjustment of the position of platform member 40'.

Rear end 44' of platform member 40' is supported at a selected elevation above top surface 28 of platform section 20 by means of selected spacing elements 144 and suitable threaded fasteners 146. Longitudinally extending slots 148 in platform member 40' adjacent its rear end 44' accommodate forward and rearward adjustment of the position of platform member 40'.

It will be observed that the spacing elements or shims 144 elevate the rear end 44' of platform member 40' above top surface 28 of platform section 20 of the ski, thus providing the desired rearward and upward inclination of platform member 40'. It will also be observed that the angle of inclination of platform member 40' may selectively be varied by removing threaded fasteners 146 and either adding or deleting spacing elements 144, as desired.

In this embodiment, conventional front and rear ski boot binding devices 30', 32' are mounted on the upper surface of platform member 40' and serve to secure a ski boot thereto in conventional fashion. It will be readily understood that the longitudinal position of platform member 40' on top surface 28 of the ski may be made infinitely variable by substituting a front mounting member incorporating a wheel-adjusted mechanism, such as that incorporated in mechanism 105 of FIGS. 5, 6 and 7, for the front mounting member 138. Similarly, the angle of inclination of platform member 40' may be made infinitely variable by employing a wheel-adjusted mechanism, such as that incorporated in mechanism 59 of FIGS. 1–4, in lieu of spacing elements 144.

Referring now to FIG. 10 in which like elements are again indicated by like reference numerals and similar elements by primed reference numerals, here a platform member 40'' having a fixed angle of inclination with respect to the top surface 28 of platform section 20 of the ski is provided, platform member 40'' being secured to top surface 28 in any suitable fashion, as by threaded fasteners 150. Here again, conventional front and rear ski binding devices 30', 32' are mounted on the upper surface of platform member 40' and serve releasably to secure a ski boot thereon. It will be observed that platform member 40'' again is inclined rearwardly and upwardly from its forward to its rear ends 42'', 44''. It will be observed that longitudinal position of platform member 40'' on top surface 28 may be selectively adjusted by providing additional spaced, threaded openings 151 in top surface 28 to receive threaded fasteners 150.

Referring now to FIG. 11 in which like elements are again indicated by like reference numerals and similar elements by primed reference numerals, here platform section 20' of the ski has the rearwardly and upwardly inclined platform 40''' integrally formed thereon, as by molding or laminating. Again, platform 40''' is inclined rearwardly and upwardly from its forward end 42''' to its rear end 44'''. It will be understood that different pairs of skis may be fabricated with platforms 40''' having different angles of inclination and longitudinal positions on the ski to suit the desire of a particular skier.

Referring now to FIGS. 12 and 13 in which like elements are again indicated by like reference numerals, conventional ski boots have a rigid sole 104, commonly formed of molded fiberglass, and thus the platform member 40 of the previous figures may be dispensed with, the sole 104 in essence serving as the platform. Here, toe end 152 of boot sole 104 is directly engaged by front binding device 30 in conventional fashion, while heel end 154 is engaged and supported by mechanism 156 for infinitely variable upward and downward movement, as shown by arrow 54, thereby providing the desired inclination of sole 104 and boot 100 with respect to top surface 28.

Mechanism 156 comprises a base 158 secured to top surface 28, as by screws 160. Base 158 has a pair of upstanding, transversely spaced ears 162 which define a slot 164 therebetween. A support member 166 is provided having parts 168, 170 which engage heel end 154 of sole 104, and a tongue 172 which is slideably seated in slot 164. A suitable screw 174 is threadingly seated in threaded bore 176 in base 158, and has a knurled head 178. It will be seen that manual rotation of

head **178** in one direction or the other will result in raising or lowering of heel **154**, thus providing the desired angle of inclination of sole **104** and boot **100**. The toe end **152** of sole **104** pivots on top surface **28**, the front binding **30** accommodating this pivotal movement.

It will now be seen that in each embodiment of the invention, the rearwardly and upwardly inclined ski boot mounting inherently angulates the skier's legs and provides the desired knee bending thus forcing the skier to adopt the correct leg and knee positions for snow plowing, stemming and parallel skiing. It will further be seen that inclination of the boot inherently gives the skier the desired forward lean and moves the center of gravity forwardly, use of the inclined ski boot mounting of the invention being less tiring since substantially less ankle bending is required in order to achieve the desired leg and knee positions. The embodiments of FIGS. **1–9** which provide both selective adjustment of the angle of inclination of the platform and selective forward and rearward adjustment thereof are preferred in that they permit adjustment of the inclination and position of the platform to suit a particular skier and to accommodate different snow conditions.

While there have been described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of the invention.

What is claimed is:

1. A ski having forward and rear ends and a top surface, a boot mounting platform having forward and rear ends respectively facing said forward and rear ski ends and means for attaching said platform to said top surface of said ski, said platform including a base plate member supported on said top surface and having forward and rear ends, a platform member having forward and rear ends, means for pivotally connecting said forward end of said platform member to said base plate member adjacent said forward end thereof, selectively adjustable means acting between said rear end of said platform member and said base plate member adjacent said rear end thereof for supporting said rear end of said platform member at selected elevations above said base plate member thereby selectively to vary the inclination of said platform member with respect to said base plate member and top surface, and means for selectively moving said platform member between selected forward and rearward positions on said base plate member.

2. The ski of claim **1** wherein said moving means includes means for providing infinitely variable adjustment of the position of said platform member on said base plate member.

3. The ski of claim **1** wherein said attaching means includes front and rear ski boot bindings mounted on said top surface and respectively releasably engaging said forward and rear ends of said base plate member.

4. The ski of claim **1** further comprising a boot having its sole bonded to said platform member.

5. A ski boot mounting comprising: an elongated platform member having front and rear ends for supporting a ski boot on the top surface of a ski having forward and rear ends, and means for adjustably supporting said platform member adjacent said rear end thereof at selected elevations above said top surface whereby said platform member is inclined upwardly and rearwardly from said front to said rear ends thereof with respect to said top surface, mounting means including means for selectively moving said platform member forwardly and rearwardly, said mounting means including a base plate member adapted to be mounted on said top surface of said ski and having forward and rear ends, and means for pivotally connecting said front end of said platform member to said base plate member adjacent said forward end thereof, said supporting means acting between said rear end of said platform member and said base plate member adjacent said rear end thereof.

6. The mounting of claim **5** wherein said supporting means includes means for providing infinitely variable adjustment of the inclination of said platform member.

7. The mounting of claim **6** wherein said moving means includes means for providing infinitely variable adjustment of said position of said base plate member.

8. The mounting of claim **5** further comprising a boot having its sole bonded to said platform member.

9. The mounting of claim **5** further comprising front and rear ski boot binding means mounted on said platform member for releasably engaging a boot.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,675,938 Dated July 11, 1972

Inventor(s) Jon D. Sigl

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

IN THE TITLE

line [72] change "Fort Wayne, Indiana" to --Conway, Michigan--

Signed and sealed this 12th day of December 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
☆ U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334