

Aug. 13, 1968

W. PRIMAK
SKI OVERBOOT

3,396,479

Filed Oct. 14, 1965

2 Sheets-Sheet 1

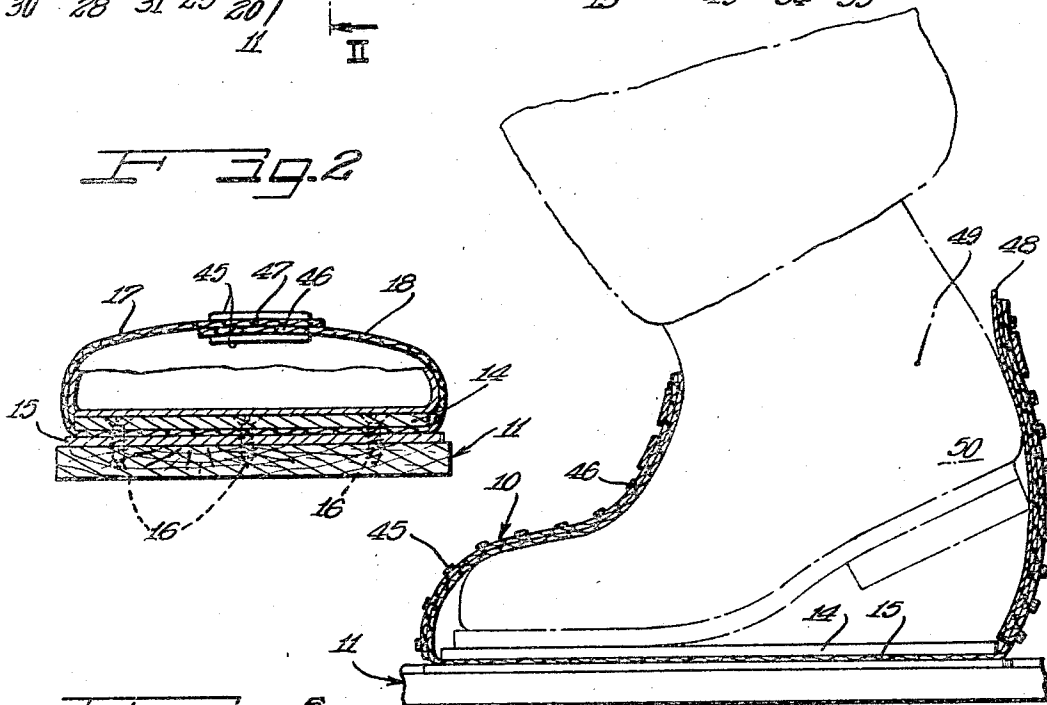
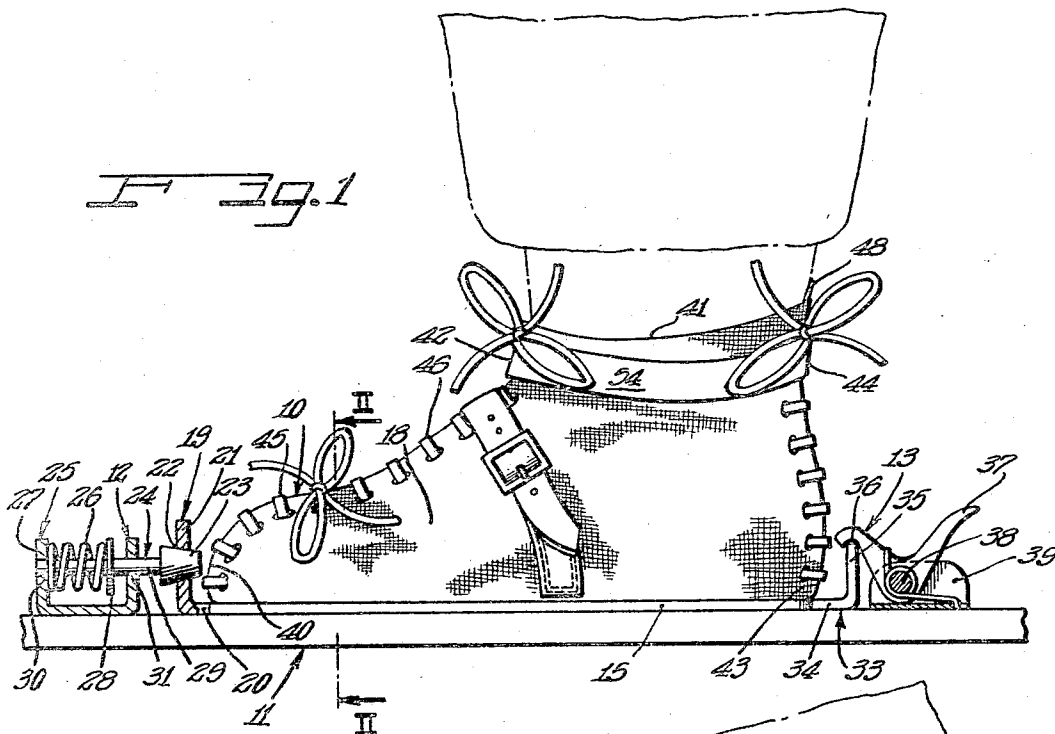


Fig. 5

INVENTOR.

William Primak

BY *Hill, Sherman, Merri, Goss & Singer* ATTORNEYS

Aug. 13, 1968

W. PRIMAK

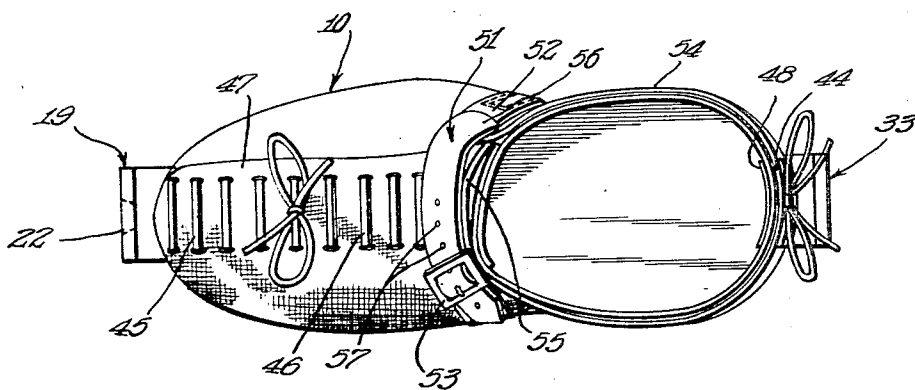
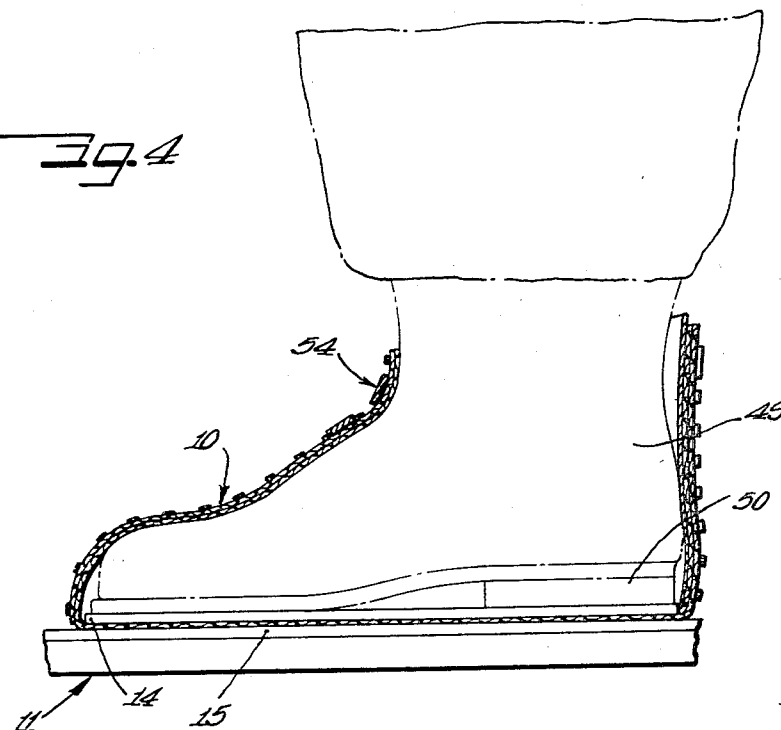
3,396,479

SKI OVERBOOT

Filed Oct. 14, 1965

2 Sheets-Sheet 2

F 39.4



F 39.3

INVENTOR.

William Primak

BY *Hell, Sherman, Meroni, Chadd & Simpson*

ATTORNEYS

1

3,396,479

SKI OVERBOOT

William Primak, 735 S. Quincy St.,
Hinsdale, Ill. 60521Filed Oct. 14, 1965, Ser. No. 495,947
10 Claims. (Cl. 36-2.5)

ABSTRACT OF THE DISCLOSURE

A ski overboot adapted to be held in a ski release binding and having a substantially rigid sole with a flexible upper extending from opposite sides of the sole. The flexible upper has a first set of adaptation flaps extending from the rear of the ankle opening to the heel portion and having a second set of adaptation flaps extending from the front of the ankle opening to the toe portion. The adaptation flaps are provided to be adjustably by means of a rear lacing and a front lacing which are secured to the respective flaps for adjustably controlling the degree of restraint of the overboot on the innerboot.

This invention relates to a ski overboot and in particular to a boot adapted to be worn over a boot liner or conventional boot and for being mounted in a ski binding to provide added adaptability to varying skiing conditions.

Downhill skiing requires as rigid an attachment of skier and ski as is commensurate with proper safety precautions. To accomplish this objective, ski bindings have been developed which are rigid for normal skiing purposes but which will disengage by abnormal forces as are experienced during a fall or the like.

In contrast to downhill skiing, cross country skiing or ski mountaineering requires a less firm relationship between ski and skier. In fact, under these circumstances the ski becomes an impediment to effective movement if tightly bound to the skier's foot.

A normal walking or striding motion requires lifting the heel and gaining support from the ball of the foot. However, a rigidly secured ski effectively lengthens the foot and makes walking or striding awkward and tiresome.

Accordingly, it is a principal object of this invention to provide a ski boot which is adaptable to customary ski bindings and which provides the necessary adaptability for downhill and cross country skiing.

It is also an object of this invention to provide a ski overboot for being adapted to a ski binding and for receiving an inner boot therein which may be adjusted for either downhill or cross country skiing conditions.

It is another object of this invention to provide a ski overboot having front and rear adaptation flanges which permit variable degrees of mobility of an inner boot fitted therein.

It is a further object of this invention to provide a boot for being worn over an inner boot and which provides the needed rigidity for downhill skiing and which permits vertical but not lateral heel movement for cross country skiing or ski mountaineering.

These and other objects, features, and advantages of the present invention will be understood in greater detail from the following description and the accompanying drawings wherein reference numerals are utilized in designating an illustrative embodiment and wherein:

FIGURE 1 is an elevational view of a ski overboot according to the specifications of this invention as shown mounted in a ski binding;

FIGURE 2 is a sectional view taken along the lines II-II of FIGURE 1 and further illustrating the overboot structure of this invention;

2

FIGURE 3 is a top view of the ski overboot of this invention showing the front lacing and the heel strap as utilized thereon;

FIGURE 4 is a sectional view of the ski overboot of this invention and illustrating the position of an inner boot therein under downhill skiing conditions, and

FIGURE 5 is a sectional view of the ski overboot of this invention and illustrating a typical cross country or ski mountaineering position of the inner boot therein.

An illustrative embodiment of the ski boot of this invention is shown generally in FIGURE 1 as comprising a ski overboot 10 which is mounted on a ski 11 within ski binding clamps 12 and 13 respectively.

It may be noted that the overboot of this invention is mounted directly within the ski binding which may be a conventional downhill release type of ski binding, while the inner ski boot is maintained in a proper skiing relationship to the ski structure via its mounting within the overboot. Therefore, the ski overboot of this invention is an attachment of the ski binding in that it secures the inner boot to the ski structure.

However, because of the novel structure of the overboot 10, the inner boot has greatly increased flexibility over that which would be experienced by a direct attachment to the ski clamps 12 and 13. In addition, the overboot 10 completely envelops the inner boot and thereby provides added warmth and protection from snow and water. It is understood that the inner boot shown in the drawing is an illustrative embodiment, and that, in practice, the inner boot may be of a specialized kind, thus permitting skiing as an approach to some other activity, such as rock climbing or ice climbing.

The ski overboot 10 is provided with a rigid inner sole 14 constructed of wood or a suitable synthetic substitute. A lighter outer sole 15, preferably of a waterproof material, is secured to the inner sole 14 by a plurality of boot fasteners 16.

The rigid inner sole may be accomplished by using a more flexible material and incorporating a thin rigid material such as a metal strip or the like. The inner and outer soles may be combined by cementing, fusing, molding, stitching, or the like.

The overboot 10 is provided with an upper, having opposing wall portions 17 and 18. The upper may be formed of leather or a suitable substitute and has its lower extremities sandwiched between the inner and outer soles 14 and 15, respectively, and maintained in position by the boot fasteners 16. This construction is commonly referred to as a split vamp and may be laced or buckled nearly to the toe to provide greater ease of insertion or removal of an inner boot and to provide greater adjustment for fitting a variety of inner boots. Though a closed over boot is shown as the illustrative embodiment, it will be apparent that a more open type harness may be used, and it is intended that the term "overboot" as used herein includes such a structure as well as the closed structure illustrated.

A toe iron 19, consisting of a horizontal plate 20 and a vertical leg 21, is securely attached to the inner sole as shown in FIGURE 1. The vertical leg 21 has an opening 22 formed centrally thereof for receiving the head 23 of a spring loaded pin 24.

Various ski release bindings may be used in conjunction with the overboot of this invention. A typical downhill ski binding is shown in FIGURE 1. In particular, the pin 24 of the ski clamp 12 is maintained within the opening 22 of the toe iron 19 by its mounted position within a bracket 25 which in turn is secured to the ski 11. Operation of the bracket 25 and the pin 24 is well understood and consists essentially of a spring 26 which is disposed between a vertical leg 27 of the bracket 25 and a plate 28 fixedly secured to a shaft 29 of the pin 24. The pin 24

3

slides within guide openings 30 and 31 formed within the bracket 25 and therefore is maintained in force engagement within the opening 22 of the toe iron 19 as illustrated.

Likewise, a heel iron 33 consists of a horizontal plate 34 and a vertical plate 35. The plate 34 is rigidly secured to the inner sole of the overboot 10, as shown in FIGURE 1, and the vertical plate 35 is caused to engage the under surface 36 of a rocker clamp 37. The clamp 37 is pivotally mounted as at 38 and is spring loaded into engagement with the vertical plate 35 of the heel iron 33. The pivotal mounting of the clamp 37 at the point 38 is accomplished via a bracket 39 which is fixedly secured to the ski 11 as in the case of the bracket 25.

As is well understood the overboot 10 is mounted within the ski binding by rotating the clamp 37 clockwise in FIGURE 1 and depressing the spring loaded pin 24 of the clamp 12 within the opening 22 of the toe iron 19. With the toe iron so positioned, the clamp 37 may be released and allowed to rotate counterclockwise for engaging the vertical plate 35 of the heel iron 33. In normal fashion, the ski overboot 10 together with the toe and heel irons 19 and 33 will be released from a clamped position with the ski 11 due to a sudden shock delivered to the clamp 37. In particular, the clamp 37 will be caused to rotate clockwise by an upward force of the heel iron 33 relative to the ski 11. This is a well understood safety feature, and it is to be noted that the ski binding clamps directly to the ski overboot rather than to the inner boot.

The inner boot is placed within the boot structure shown in FIGURES 1 and 2 and is secured relative to the ski by the binding effect of the upper sections 17 and 18 of the overboot 10.

It may be noted in FIGURE 1 that the overboot of this invention is provided with lacings which extend from the toe portion 40 to an ankle opening 41 at the point 42 and from a heel portion 43 to a point 44 rearwardly of the ankle opening 41. The front lacing consists of two sections, namely, a lower section 45 and an upper section 46. In contrast, the heel lacing extends continuously from the point 43 to the point 44 rearwardly of the ankle opening 44.

The openings resulting from the lacing provision of this invention are accommodated in two manners. First, the front lacings are provided to extend through overlapping sections 46 and 47 of the upper sections 17 and 18. The lacing extends through both these sections and provides a tight seal therebetween as shown in FIGURE 2. In the alternative a bellows tongue construction could be used to prevent the admission of snow to the overboot interior.

In contrast, the opening resulting from the lacing extending from the heel portion 43 to the ankle opening as at the point 44 is accommodated by a heel tongue 48 extending from the inner sole 14 to the ankle opening at the point 44. The opening resulting from the lacing structure at the heel of the overboot is well understood and the provision for the heel tongue 48 in conjunction with the lacing, as illustrated provides a tight seal for the overboot 10.

More importantly, the heel tongue must be sufficiently broad and have a sufficiently smooth inner surface to act as a slide for the inner boot to permit easy upward and downward action of the inner boot during a walking motion.

The overlapping sections or eyelet flaps 46 and 47 formed at the toe section of the overboot 10 as well as the similar flaps formed at the rear or heel lacing 43 through 44 may be termed adaptation flaps, insofar as they provide means for adapting the bindings of the inner boot within the overboot 10 to the given skiing conditions. In particular, FIGURES 4 and 5 show an inner boot 49 disposed within the overboot 10 and rigidly secured therein by virtue of the tightening of the front lacings 45 and 46 and of the rear lacing 43-44.

4

However, by loosening the respective lacings, the inner boot 49 may be provided with increased mobility within the outer boot 10 as shown in FIGURE 5. While the rigidity of the binding illustrated in FIGURE 4 is ideal for downhill skiing conditions, the flexibility of the binding as shown in FIGURE 5 and the mobility of the inner boot 49 within the outer boot 10 is ideal for cross country or ski mountaineering. As shown in FIGURE 5, the loosening of the respective lacings allows the heel 50 of the inner boot 49 to have vertical motion within the outer boot 10 similar to the movement encountered during normal walking or striding. As shown in FIGURE 5, the heel 50 is allowed to ride along the inner surface of the heel tongue 48 to aid the ease of movement of the inner boot. It will be understood that buckles or the like may be substituted for the respective lacings to accomplish the mobility restriction desired.

It may be noted that varying degrees of rigidity may be accomplished by adjusting the positioning of one or more of the three lacings illustrated in the preferred embodiment of this invention. In particular, for ski mountaineering conditions the upper front lacing 46 and the rear lacings 43-44 may be loosened to provide the needed mobility, and it is to be understood that the mobility resulting from the loosening of the lacings of the overboot 10 is vertical mobility only. In particular, transverse mobility or instability of the heel 50 of the inner boot 49 on the ski 11 is undesirable and results in loss of control of the ski itself and, in addition, is tiring to the skier.

To provide added rigidity for downhill skiing conditions, a heel strap 51 is secured to the overboot 10. In particular, the strap 51 has a first end 52 secured as by sewing or the like to the outer surface of the overboot upper section and has a buckle 53 similarly secured to an opposite side of the overboot 10. The strap itself is provided to have sufficient length for extending around the heel of the overboot 10 and, in particular, around the ankle opening 41 as shown at 54. The strap envelops the entire ankle of the overboot 10 and extends from the point 55 forwardly of the shoe to form a loop as at 56 with the portion of the strap adjacent to the point 52. From the loop 56 the strap returns to the vicinity of the buckle 53 and is secured thereto in the normal manner. As is well understood, the strap 51 is provided with a series of adjustment openings 57 for engaging the buckle 53 under varying degrees of restraint.

In converting from cross country to downhill skiing the lacings may be left in a loosened conditions and just the strap may be tightened to provide the necessary rigidity. Likewise in converting to cross country skiing just the strap may be loosened. In this way only a single movement is required to make the conversion. The lacings, however, remain available to be adjusted to the skier's comfort.

It will be understood that various modifications may be suggested by the embodiment disclosed herein, but I desire to claim all such embodiments as properly come within the scope of my invention.

I claim as my invention:

1. A ski overboot comprising:

- a principal structural sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
- a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an ankle thereby,
- said flexible upper forming an enclosure for receiving an inner boot through said ankle opening and having adaptation flaps extending from the rear of said ankle opening to said heel portion,
- a heel tongue disposed internally of said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
- said heel tongue overlying said adaptation flaps and guiding pivotal heel motion of an inner boot, and means for adjusting the positioning of said adaptation

5

flaps to control the degree of restraint of said heel tongue and said overboot on an inner boot, whereby said overboot may be adapted to downhill or cross-country skiing.

2. A ski overboot comprising:

- a principal structural sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
 - a toe iron and a heel iron fixedly secured to said toe and heel portions respectively for securing said principal sole to a ski binding,
 - a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an ankle opening thereby,
 - said flexible upper forming an enclosure for receiving an inner boot through said ankle opening and having adaptation flaps extending from the rear of said ankle opening to said heel portion,
 - a heel tongue disposed at the innermost surface of said overboot and against said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
 - said heel tongue overlying said adaptation flaps and guiding pivotal heel motion of an inner boot, and a rear lacing deployed from said heel portion to said ankle opening across said adaptation flaps and adjustably controlling the degree of restraint of said heel tongue and said overboot on an inner boot,
- whereby said ski overboot may be adapted to changing skiing conditions by adjusting the tightness of said rear lacing.

3. A ski overboot comprising:

- a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
 - a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an ankle opening thereby,
 - said flexible upper forming an enclosure for receiving an inner boot through said ankle opening and having adaptation flaps extending from the front of said ankle opening to said toe portion, and
 - a lower front lacing deployed across said adaptation flaps from said toe portion to an intermediate adjustment point between said toe portion and said ankle portion and an upper front lacing deployed across said adaptation flaps, from said intermediate adjustment point to said ankle opening,
 - said lower and upper front lacings securing to each of said adaptation flaps, and adjustably controlling the degree of restraint of said overboot on said inner boot,
- whereby said flexible upper may be maintained in a relatively taut relationship with an inner boot at a region adjacent said toe portion and in a relatively mobile relationship with the inner boot at a region adjacent said ankle opening.

4. A ski overboot comprising:

- a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
- a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an ankle opening thereby,
- said flexible upper forming an enclosure for receiving an inner boot through said ankle opening and having adaptation flaps extending from the front of said ankle opening to said toe portion,
- a lower front lacing deployed across said adaptation flaps from said toe portion to an intermediate adjustment point between said toe portion and said ankle portion and an upper front lacing deployed across said adaptation flaps from said intermediate adjustment point to said ankle opening,
- said lower and upper front lacings secured to each of said adaptation flaps and adjustably controlling the

6

degree of restraint of said overboot on said inner boot,

- a downhill strap secured to the sides of said flexible upper below said adaptation flaps adjacent to said ankle opening, and
 - means for adjusting the tightness of said downhill strap to secure the heel of an inner boot against said heel portion of said principal sole,
- whereby said upper front lacing cooperates with said downhill strap to give added rigidity for downhill skiing and added flexibility for cross-country skiing or ski mountaineering.

5. A ski overboot comprising:

- a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
- a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an enclosure having an ankle opening for receiving an inner boot therethrough,
- said flexible upper having a first set of adaptation flaps extending from the rear of said ankle opening to said heel portion and having a second set of adaptation flaps extending from the front of said ankle opening to said toe portion,
- a heel tongue disposed at the innermost surface of said overboot and against said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
- said heel tongue overlying the interior of said first set of adaptation flaps and guiding pivotal heel motion of an inner boot, and
- independent means for adjusting the positioning of each of said sets of adaptation flaps to control the degree of restraint of said overboot on an inner boot.

6. A ski overboot comprising:

- a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
 - a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an enclosure having an ankle opening for receiving an inner boot therethrough,
 - said flexible upper having a first set of adaptation flaps extending from the rear of said ankle opening to said heel portion and having a second set of adaptation flaps extending from the front of said ankle opening to said toe portion,
 - a heel tongue disposed at the innermost surface of said overboot and against said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
 - said heel tongue overlying the interior of said first set of adaptation flaps and guiding pivotal heel motion of an inner boot,
 - a rear lacing deployed from said heel portion to said ankle opening across said first set of adaptation flaps, and
 - a front lacing deployed from said toe portion to said ankle opening across said second set of adaptation flaps,
 - said rear and front lacings secured to said respective flaps and adjustably controlling the degree of restraint of said overboot on an inner boot,
- whereby said overboot may be adjusted for downhill or cross-country skiing by changing the tightness of said front and rear lacings.

7. A ski overboot comprising:

- a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
- a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an enclosure having an ankle opening for receiving an inner boot therethrough, said flexible upper having a first set of adaptation flaps extending from the rear of said ankle opening to said heel portion and having a second set of adapta-

7

tion flaps extending from the front of said ankle opening to said toe portion,
 a heel tongue disposed internally of said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
 said heel tongue overlying the interior of said first set of adaptation flaps and guiding pivotal heel motion of an inner boot,
 a rear lacing deployed from said heel portion to said ankle opening across said first set of adaptation flaps, and
 a lower front lacing deployed across said second set of adaptation flaps from said toe portion to an intermediate adjustment point between said toe portion and said ankle portion and an upper front lacing deployed across said second set of adaptation flaps from said intermediate adjustment point to said ankle opening,
 said rear and front lacings secured to said respective flanges and adjustably controlling the degree of restraint of said overboot on an inner boot.

8. A ski overboot comprising:
 a principal sole formed of a substantially rigid material and having a toe portion and a heel portion thereof,
 a flexible upper extending from opposite sides of said principal sole from said toe portion to said heel portion and forming an enclosure having an ankle opening for receiving an inner boot therethrough,
 said flexible upper having a first set of adaptation flaps extending from the rear of said ankle opening to said heel portion and having a second set of adaptation flaps extending from the front of said ankle opening to said toe portion,
 a heel tongue disposed internally of said flexible upper and extending from said principal sole to the vicinity of said ankle opening,
 said heel tongue overlying the interior of said first set of adaptation flaps and guiding pivotal heel motion of an inner boot,
 a rear lacing deployed from said heel portion to said ankle opening across said first set of adaptation flaps,
 a front lacing deployed from said toe portion to said ankle opening across said second set of adaptation flaps,
 said rear and front lacings secured to said respective

8

flaps and adjustably controlling the degree of restraint of said overboot on an inner boot,
 a downhill strap secured to the sides of said flexible upper below said adaptation flaps adjacent to said ankle opening, and means for adjusting the tightness of said downhill strap to secure the heel of an inner boot against said heel portion of said principal sole, whereby said front and rear lacings cooperate with said downhill strap to give added rigidity for downhill skiing and added flexibility for cross-country skiing or ski mountaineering.

9. The combination comprising:

a ski having a ski release binding securely affixed thereto,

an overboot operably mounted within said ski release binding,

said overboot having a principal structural sole constructed of a substantially rigid material and having a flexible upper secured to said principal sole and forming cavity for receiving an inner boot,

an inner boot fitted within said overboot and being thereby operably disposed within said ski release binding,

said flexible upper having adjustment means extending about said inner boot for selectably increasing or decreasing the restraint of said overboot on said inner boot.

10. The combination as described in claim 15 wherein said adjustment means comprises first and second sets of adaptation flaps formed forwardly and rearwardly, respectively, of said flexible upper, and wherein a tongue-like member is provided at the interior heel portion of said overboot to ease the upward and downward portion of said inner boot thereagainst.

References Cited

UNITED STATES PATENTS

2,412,474	12/1946	Scott-Paine et al.	36—7.5
3,007,707	11/1961	Blackwell	280—11.35
3,008,250	11/1961	Herunter	36—2.5
3,023,017	2/1962	Landry	280—11.35
3,228,122	1/1966	Ladwig	36—2.5

FOREIGN PATENTS

346,458 6/1960 Germany.

PATRICK D. LAWSON, *Primary Examiner.*