

May 10, 1960

K. PIBERHOFER

2,935,798

SKI BOOT

Filed April 28, 1958

2 Sheets-Sheet 1

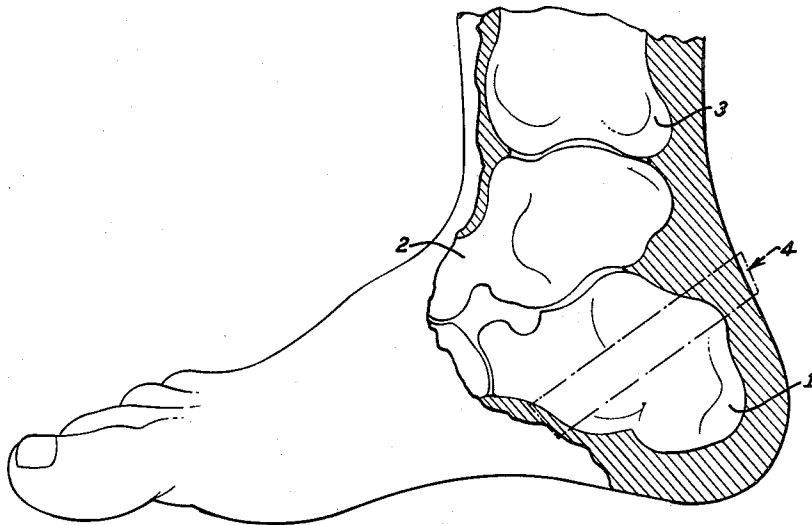


Fig. 1

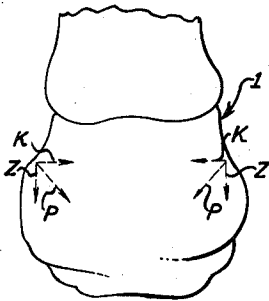


Fig. 2

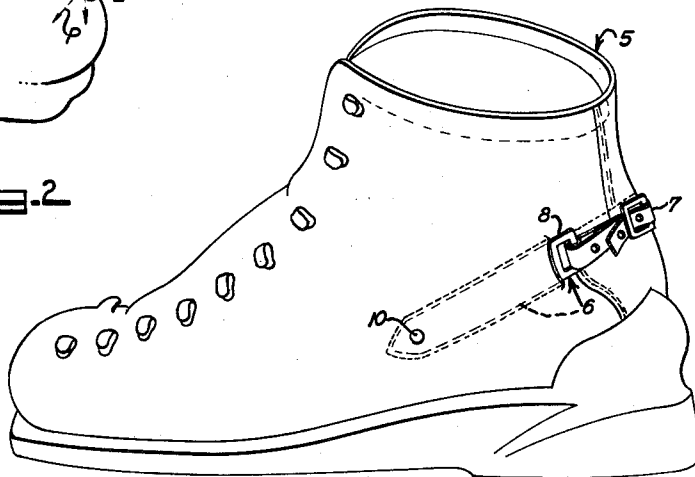


Fig. 3

INVENTOR.
KARL PIBERHOFER

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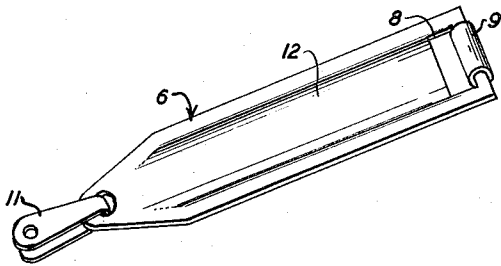


Fig. 4

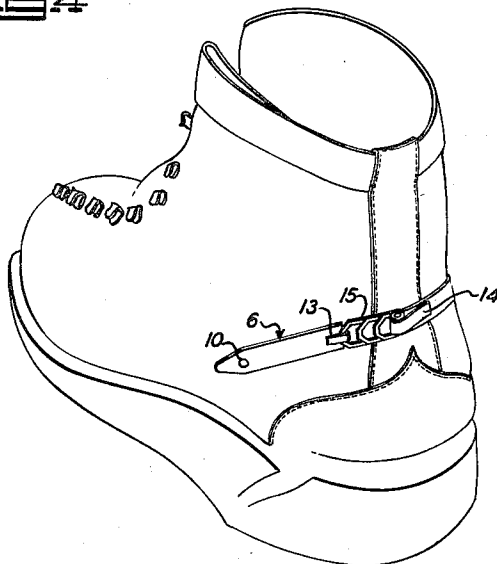


Fig. 5

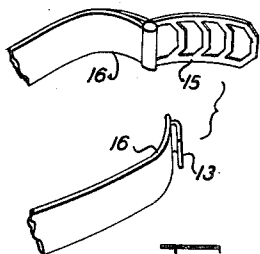


Fig. 6

INVENTOR.
KARL PIBERHOFER

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SKI BOOT

Karl Piberhofer, Innsbruck, Austria

Application April 28, 1958, Serial No. 731,348

Claims priority, application Austria June 21, 1957

11 Claims. (Cl. 36--2.5)

The invention relates to a device giving the foot a better seating in ski boots and the like.

Ski boots are already known which comprise straps extending from the lower front part oblique to the rear over the ankle or over the region immediately below the ankle, i.e. over the instep.

Well known too is the arrangement of support blades immediately beneath the ankle, supporting the ankle from below.

The purpose of such straps and blade arrangements is to prevent the foot from tipping off laterally in the boot, whereby accidental injury or sprain of tendons and ligaments may be likely to occur in the region of the instep. The danger is particularly great in ice-skating and for this reason such arrangements were proposed specially for ice-skating boots.

A support of that kind is not required in ski boots because the chance for the foot to tip off laterally will hardly arise by skiing or by walking in the snow. Moreover ski boots nowadays have shanks of such rigidity that sufficient support is provided.

But it is very important in ski boots that the heel should not be permitted to rise from the shoe bottom. On this point ever increasing requirements have to be faced as modern bindings force the boot into nearly rigid connection to the ski and modern ski boots are constructed with extremely rigid soles.

The known lateral straps and support blades in the region of ankle or instep, however, do not improve the seating of the heel in the desired way, because even if heavy pressure is applied laterally due to said straps and blades, the anatomical form of the foot in the region concerned gives no occasion for a force to act downwardly on the foot. The invention remedies this defect by providing bands, for example rigid blades, flexible straps or the like on both sides of the boot in the region below the instep, in combination with means for pulling the rear ends.

The invention is illustrated in more detail in the accompanying drawings, wherein

Figure 1 is a side view of a human foot showing partly the bones

Figure 2 is a view from the rear of same human foot

Figure 3 is a perspective view of an embodiment of the invention

Figure 4 shows a detail of Figure 3

Figure 5 is a perspective view of another embodiment of the invention and

Figure 6 is a perspective view of a detail belonging to a third embodiment.

In Figure 1 are visible the heel bone 1, the instep region 2 and the ankle 3. An area 4 defined by dotted lines shows the position of the straps, blades or the like disposed in or on the boot.

Figure 2 is a back view of the heel bone 1. Said figure shows the action of forces which become active when pressure is laterally exerted upon the heel bone.

P is the force created by lateral pressure of the straps or blades in the position shown in Figure 1. The horizontal component K of P is cancelled by the component K acting on the other side in the same way but in opposite direction. Hence there still remains on both sides a vertical component Z of the force P with a downwardly directed action upon the heel. Straps or blades arranged in the scope defined by the invention thus are able to improve the seating of the heel.

Suitable and practically executable embodiments of the invention are described hereinafter:

In the embodiment according to Figure 3 a ski boot 5 is provided on each outer face above the heel with a metal blade 6 directed forwardly and somewhat obliquely downwards and inserted between the outer leather and the lining leather. The two blades rejoin in a loop strap 7 extending on the rear of the heel. Loop strap 7 passes through eyelets 8 of blade 6. A metal roll 9 prevents friction and rapid wear of loop strap 7.

Metal blade 6 is attached to the upper of the boot by means of a leather rivet. Figure 4 shows how rivet 10 is pivotally connected over a loop 11 with metal blade 6. Said loop 11 may be metallic or made of some supple material like leather. Other means for connecting metal blade 6 to the upper may be applied. For example metal blade 6 may be secured to the upper by means of a simple rivet without a loop. Along metal blade 6 is provided in the midpart a groove-shaped recess 12 directed to the foot to provide a stiffening rib.

The embodiment according to Figure 5 comprises blades 6 externally attached to the boot at the front part and secured to the upper by means of rivets 10. One of the blades is provided at its rear end with a hook 13, the other at its rear end with a tightener 14 whose shackle 15 is shaped like a ladder in order to permit blades 6 to be pulled toward each other with variable strength.

It may be suitable to give the rear part of the blades a curved shape conforming to the curve of the shank in the heel region (Figure 6) so that the tightener closure will adapt itself better to the curved parts 16. Moreover, curved parts 16 increase lateral pressure and eliminate every pressure from the rear.

It will be understood that there may be various other possible embodiments of the invention, and that the invention should not be limited to the specific constructions herein shown or described except to the extent which may be required by the scope of the appended claims.

For example it may be possible, instead of loop straps (Figure 3) or tightener (Figure 5) positioned in the rear, to insure the joining of the rear ends of the blades by means of a screw connection.

Plastic blades may be used instead of metallic ones. The inventive effect can also be realized if the blades are replaced by straps, e.g. leather straps. Or combinations of flexible straps and rigid parts may be applied, for example in garnishing the rear of the lateral straps with rigid metal or plastic plates curve-shaped in the manner shown in Figure 6.

What I claim is:

1. In a boot having a sole and an upper, means for preventing the wearer's heel from rising from the sole, comprising a pair of substantially rigid blades disposed on opposite sides of said boot in the region below the instep, each of said blades extending laterally of the heel bone and obliquely in a forward and downward direction, the fore ends of said blades being connected with the upper, and means for drawing the rear ends of said blades against the foot and toward each other immediately above the ball of the heel.

2. In a boot having a sole and an upper consisting of an outer leather and a lining, a pair of substantially rigid

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blades inserted between the outer leather and the lining, disposed on both sides of the boot in the region below the instep, and extending laterally of the heel bone and obliquely in a forward and downward direction, the fore ends of said blades being connected with the upper, the rear ends of said blades extending through the outer leather, and means for pulling the rear ends of said blades toward each other immediately above the ball of the heel.

3. A device according to claim 1, characterized in that the fore ends of said blades are pivotally connected with the upper of the boot by means of loops.

4. A device according to claim 1, characterized in that the fore ends of said blades are secured to the upper by direct riveting.

5. A device according to claim 1, characterized in that said blades are connected with a loop strap above and on the rear part of the heel.

6. A device according to claim 1, characterized in that said blades are connected with a tightener above and on the rear part of the heel.

7. A device according to claim 1, characterized by the provision of a rib on the foot side of said blades extending longitudinally in the mid-part thereof.

8. A device according to claim 1, characterized in that

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the rear ends of said blades are curve-shaped conforming to the curve of the shank in the heel region.

9. A device according to claim 8, characterized in that tensioning means are fixed to the curve-shaped portions of said blades.

10. A device according to claim 8, characterized in that said blades extend within the upper, with the curve-shaped portion external to the upper.

11. A device according to claim 1, characterized in that said blades extend entirely outside the upper.

References Cited in the file of this patent

UNITED STATES PATENTS

459,616	Rohoczy	Sept. 15, 1891
744,798	Roberts	Nov. 24, 1903
1,422,683	Eltgroth	July 11, 1922
1,546,551	Petri	July 21, 1925
2,207,091	Fetterling et al.	July 9, 1940
2,586,749	Essen	Feb. 19, 1952

FOREIGN PATENTS

10,462	Great Britain	Sept. 18, 1913
81,154	Norway	Dec. 15, 1952
916,696	Germany	Aug. 16, 1954