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I-35131 Padova (IT)(54) **A ski boot.**

(57) A ski boot (10) with a bootleg (12) tiltable lengthwise of the boot shell (11) incorporates an adjuster device for controlling the tilting movement of the bootleg (12) which comprises a stud (14) mounted fixedly to the boot shell (11) and an adjustment member (16) associated with the bootleg (12); the adjustment member (16) is formed with a slot (20) for engagement with the stud (14) to thereby define, according to the adjustment member (16) setting, predetermined constraints to the relative movement of the bootleg (11) and the boot shell (12). This boot (10) reconciles conflicting demands of its use and is simple and reliable.

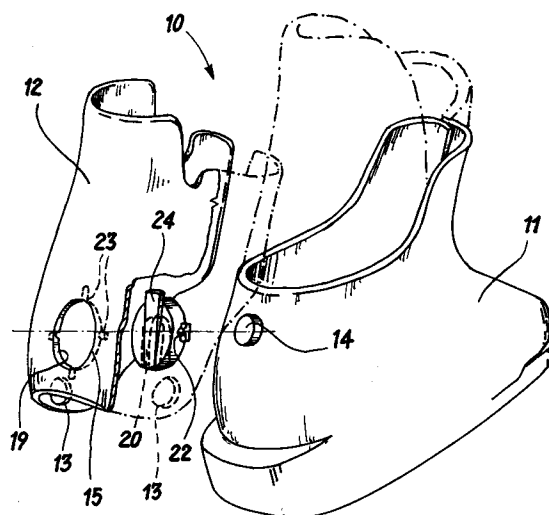


Fig. 1

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This invention relates to a ski boot having a bootleg tiltable along the longitudinal direction of the boot shell.

Ski boots are known wherein the bootleg is pivoted to the boot shell about two opposite hinge points aligned along a transverse axis of the boot, whereby the bootleg can be tilted lengthwise of the boot shell.

These ski boots are called upon in use to satisfy conflicting demands.

In normal skiing trim the bootleg is in all cases to take a predetermined position of forward inclination, and yet be allowed to swing farther forward from that position setting.

In contest trim, it must be possible to lock the bootleg in the predetermined position of forward inclination.

When the boot is not used for skiing, but worn all the same by the skier, such as for normal walking, the bootleg should be allowed to tilt back toward a substantially vertical position. It is, in fact, this ability to swing to the vertical position that makes the ski boot usable in normal footwear fashion, allowing the leg muscles to relax as befits such situations of use of the ski boot other than for skiing.

Devices for adjusting the tilting movement of the bootleg relatively to the shell are known; these devices are however complicated, making the adjustment laborious and are furthermore expensive to manufacture.

An object of the present invention is to provide a ski boot capable of satisfying, in use, the above indicated contrasting demands and at the same time it is simple and reliable.

This object is achieved by a ski boot having a boot shell, and a bootleg pivoted to the boot shell such that it can be tilted lengthwise of the boot shell, and including an adjuster device for controlling the tilting movement of the bootleg relative to the boot shell, characterized in that said adjuster device comprises a stud mounted fixedly on either one of said boot shell and bootleg, and an adjustment member associated with the other of said boot shell and bootleg, said adjustment member being shiftable through a range of different settings and formed with a slot for engagement with the stud, whereby constraints on the relative movement of the bootleg and boot shell can be selectively imposed according to the adjustment member setting.

For a more detailed explanation of the invention, an embodiment thereof will be described herein below by way of non-limitative example with reference to the accompanying drawings, in which:

Figure 1 is an exploded rear view showing in perspective a ski boot according to the invention;

Figure 2 shows, drawn to an enlarged scale, a detail of the boot in Figure 1;

Figure 3 shows the boot of Figure 1 in the assembled state;

Figure 4 is an exploded perspective view of a detail of this boot;

Figures 5 and 6 are rear and side views, respectively, showing a first setting of this boot in operation;

Figures 7 and 8 are similar views to Figures 5 and 6, respectively, showing a second setting of this boot in operation; and

Figures 9 and 10 are similar views to Figures 5 and 6, respectively, showing this boot in a third setting of its operation.

With reference to Figures 1 to 4, there is shown a ski boot, generally designated as 10, which comprises a boot shell 11 and a bootleg 12 fitted over the shell 11. The bootleg 12 is pivoted to the shell 11 about two opposite hinge points 13 which are aligned along a transverse axis to the boot 10; in this way, the bootleg 12 can be tilted lengthwise of the shell 11, or rather swung either toward the toe or the heel end of the boot 10.

Mounted on the rearward portion of the shell 11 is a stud 14, preferably molded integral with the boot shell. Formed in the bootleg 12 correspondingly with the stud is a circular opening 15 which provides a socket whereinto a knob 16 is received rotatably in engagement with the stud 14.

The knob 16 has a cylindrical body 17 whose lateral surface 18 mates with the rim 19 of the opening 15. A U-shaped slot 20 is formed in the body 17 which runs straight, radially out from the center to the periphery of the body 17; the stud 14 is received inside the slot 20. From diametrically opposite sides of the body 17, there extend wings 21 which locate, in the assembled state of the boot, between the shell 11 and the bootleg 12, thereby retaining the knob 16 in the socket formed by the opening 15. The wings 21 are provided, on their respective surface facing the bootleg, with a respective dog 22 adapted to snap into corresponding recesses 23 formed in the juxtaposed bootleg surface at a spacing of 90 degrees from each another. It should be noted that the recesses 23 only concern the bootleg surface next to the shell, and do not extend through to the opposite surface, being thereby hidden from view when the boot is in its assembled state.

The body 17 of the knob 16 protrude outwards through the opening 15, and formed on its outward face, is a diametrically extending tongue 24.

The knob 16 and stud 14 enable the tilting movement of the bootleg 12 relative to the shell 11 to be controlled.

Specifically, as shown in Figures 5 and 6, in the knob 16 setting shown, with the slot 20 pointing

downwards and aligned to the swing path of the bootleg 12, the bootleg 12 is allowed to swing relative to the shell 11 in a constrained fashion between a predetermined position of forward inclination (chain line) and a more forward tilted position (solid line) as may be imposed by a condition of maximum bend of the skier's leg. This constrained oscillation is controlled by the mutual engagement of the stud 14 and the slot 20; the oscillation is allowed by the slot riding the stud; and the travel limits of the slot on the stud, as defined by the slot bottom abutting against the stud, at one end, and the rim 19 of the opening 15 abutting against that stud, at the other end, will define the aforesaid positions of forward inclination for the bootleg 12.

With reference to Figures 7 and 8, when the knob 16 occupies the position shown, with the slot 20 turned to the right and set perpendicular to the swing path of the bootleg 12, the bootleg 12 will become locked in said predetermined tilted position. This locked condition is brought about by that the slot 20 is set perpendicular to the swing path of the bootleg 12 and cannot ride the stud 14 because its opposite side walls, embracing the stud, block any swinging movement of the bootleg. This same operating condition can be obtained by setting the knob 16 with the slot 20 to the left, perpendicular to the swing path of the bootleg 12.

With reference to Figures 9 and 10, when the knob 16 occupies the position shown, with the slot 20 pointing upwards and aligned to the swing path of the bootleg 12, the bootleg 12 is allowed to swing rearward relative to the shell 11 in a constrained fashion from said predetermined position of forward inclination (chain line) toward a substantially vertical position (solid line). This constrained oscillation is provided by the mutual engagement of the stud 14 and the slot 20 as explained above in connection with the working position of Figures 5, 6, but with the difference that here, with the slot upright, and hence removed from the position of the working condition of Figures 5,6, the travel limits for the slot on the stud will define a different swing angle for the bootleg 12, that is an angle included between said predetermined position of forward inclination and said substantially vertical position.

The knob 16 is moved between the above-described positions by simply turning it about the stud 14 axis, a feature made possible by that the engagement of the stud 14 with the slot 20 allows for rotation of the slot relative to the stud; for the knob to be turned, the stud should locate at the slot bottom with the knob centered. A change in the knob setting from the foregoing first position to the second, and from the second position to the third, is brought about by turning the knob 16

through 90 degrees; upon the knob reaching one of the above positions, the dog 11 will snap into one of the recesses 23 correspondingly with the position reached and lock the knob in that position.

By means of the adjuster device described and illustrated hereinabove, the ski boot 10 can reconcile the conflicting demands mentioned in the introductory part. In particular, the setting shown in Figures 5, 6 would be used for normal skiing, the setting shown in Figures 7, 8 would be used for contest skiing, whereas the setting of Figures 9, 10 would be used to relax the skier's leg muscles, e.g. while riding a mechanical ascent means or for normal walking with the boots on.

All this is accomplished using but two elements, namely a suitably designed knob and a stud, effective to ensure simplicity and reliability of the boot.

The dog 22 and recesses 23 afford accurate definition of the knob 16 settings.

The tongue 24 makes it easier to grasp the knob 16 for turning, and provides a visual indication of the knob setting.

It is understood that changes and/or additions may be made unto the embodiment described and illustrated.

In particular, the slot may be made to a different pattern from that shown, contingent on the swing angle sought for the bootleg.

In general, the knob may be replaced with any other adjustment member which can serve equivalent functions.

By appropriate alterations, the stud could be mounted fixedly to the bootleg and the adjustment member associated with the boot shell.

Claims

1. A ski boot (10) having a boot shell (11), and a bootleg (12) pivoted to the boot shell (11) such that it can be tilted lengthwise of the boot shell (11), and including an adjuster device for controlling the tilting movement of the bootleg (12) relative to the boot shell (11), characterized in that said adjuster device comprises a stud (14) mounted fixedly on either one of said boot shell (11) and bootleg (12), and an adjustment member (16) associated with the other of said boot shell (11) and bootleg (12), said adjustment member (16) being shiftable through a range of different settings and formed with a slot (20) for engagement with the stud (14), whereby constraints on the relative movement of the bootleg (12) and boot shell (11) can be selectively imposed according to the adjustment member (16) setting.

2. A ski boot according to Claim 1, wherein, with the adjustment member (16) in one setting position, the slot (20) lies along the swing path of the bootleg (12) such that it can ride the stud (14) to define a selected swing angle for the bootleg (12); with the adjustment member (16) in another setting position, the slot lies along the swing path of the bootleg (12) in a removed position from the former such that it can ride the stud to define another selected swing angle for the bootleg (12); and with the adjustment member (16) in a further setting position, the slot (20) lies perpendicularly to the swing path of the bootleg (12) so as to block the angular movement of the bootleg (12).

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3. A ski boot according to Claim 2, wherein said angular movement of the bootleg (12) takes place between a predetermined position of forward inclination and a farther forward tilted position of the bootleg (12), and between said predetermined position of forward inclination and a substantially vertical position of the bootleg (12), and wherein said setting position blocking the angular movement of the bootleg (12) is said predetermined position or forward inclination of the bootleg (12).

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4. A ski boot according to one of the preceding claims, wherein said adjustment member comprises a knob (16) received rotatably into a circular opening (15) of the bootleg (12), the stud (14) being mounted fixedly to the boot shell (11).

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5. A ski boot according to Claim 4, wherein said slot (20) is formed in the knob (16) body (17) and extends radially from the center of the knob (16) body (17).

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6. A ski boot according to Claim 4, wherein snap-action means (22,23) are arranged to lock the knob (16) at different rotational settings thereof.

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7. A ski boot according to Claim 4, wherein wings (21) extend from the body (17) of the knob (16) to hold the knob (16) within the opening (15).

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8. A ski boot according to Claim 4, wherein the outer face of the knob (16) has a tongue (24) configured for more convenient grip on the knob (16) and to provide a visual indication of the knob setting.

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9. A ski boot according to Claim 1, wherein said adjuster device is located on the rearward portion of the boot.

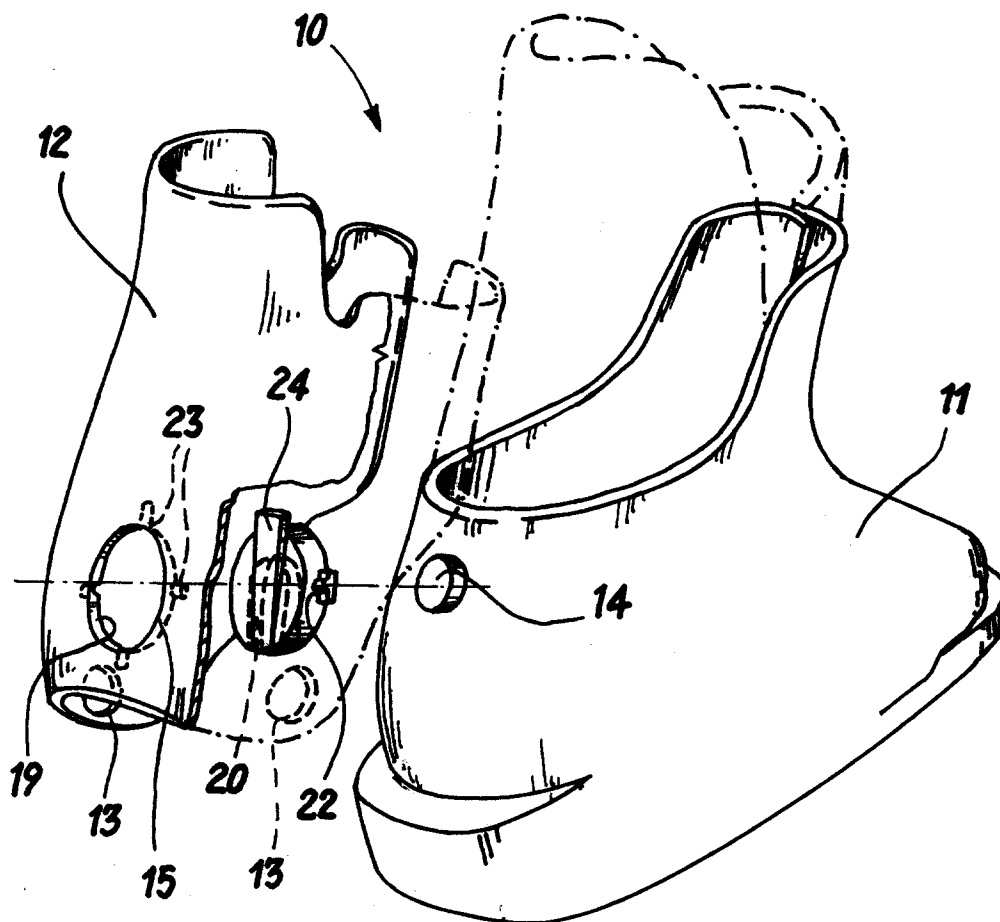


Fig. 1

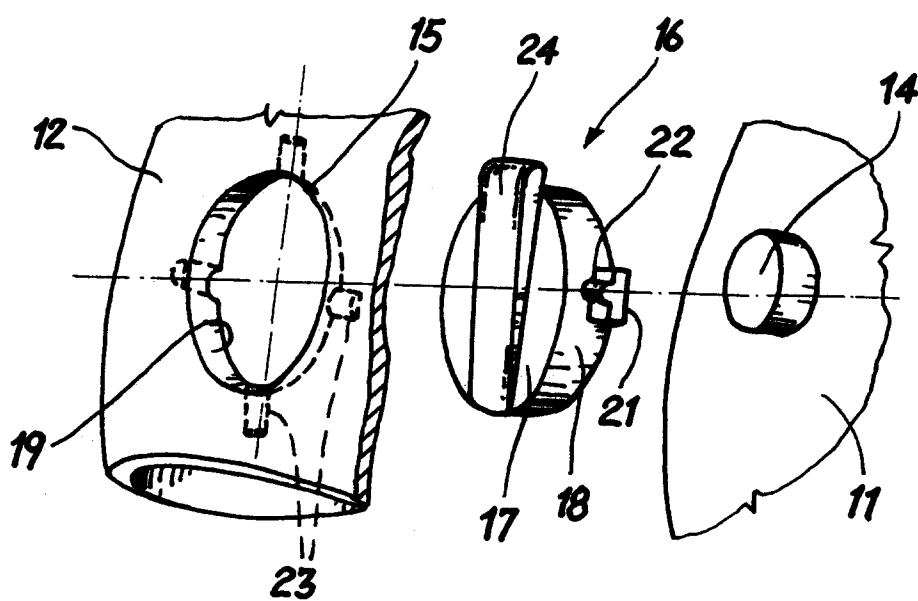


Fig. 2

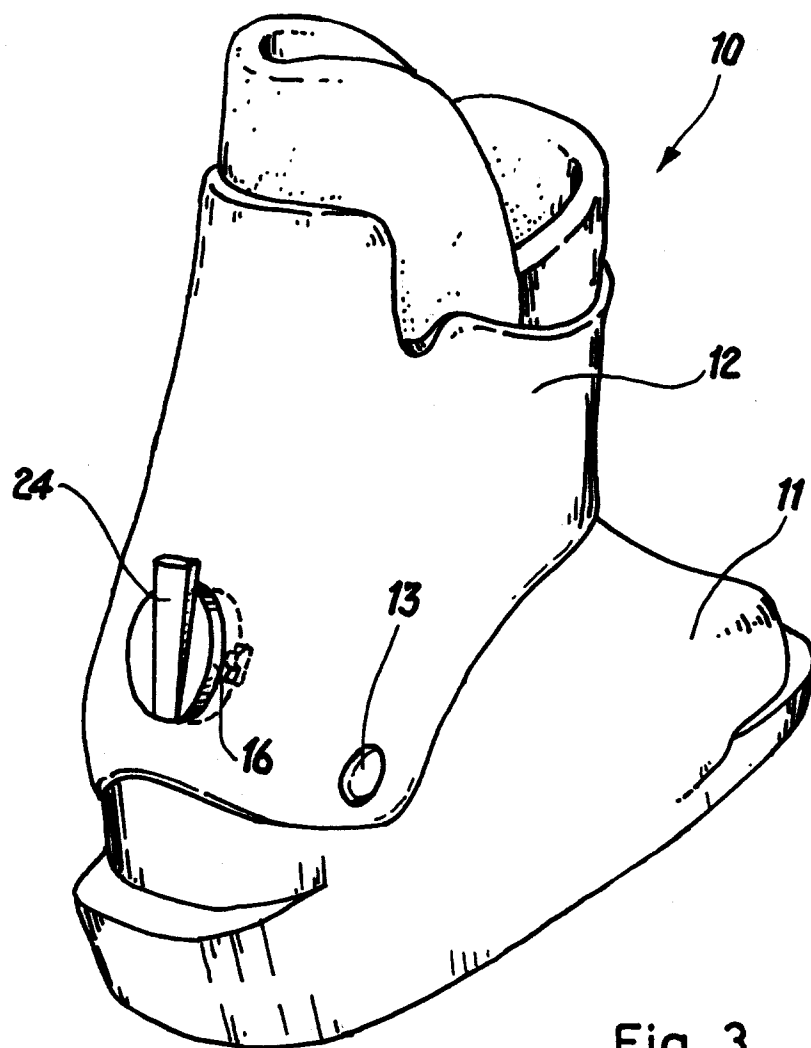


Fig. 3

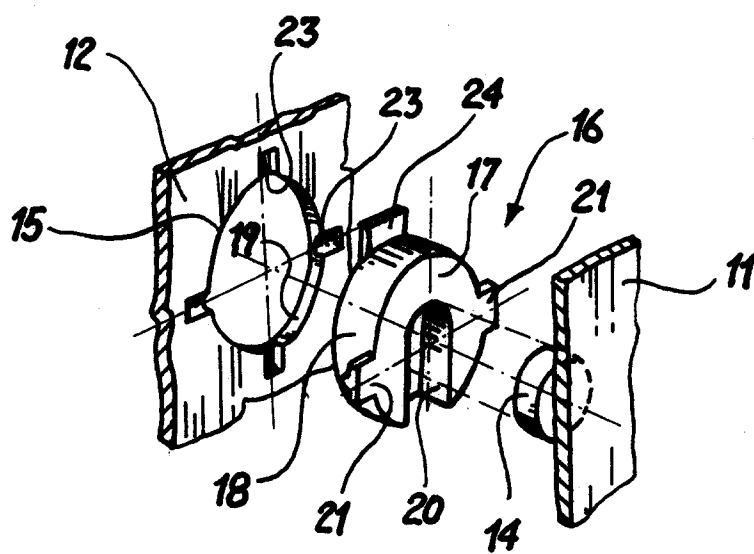
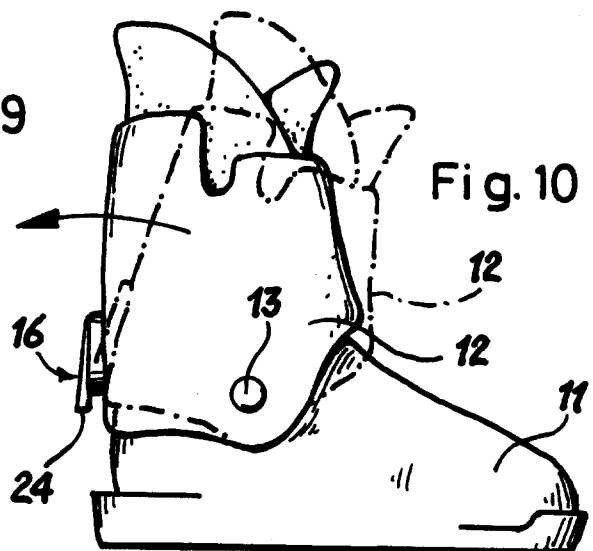
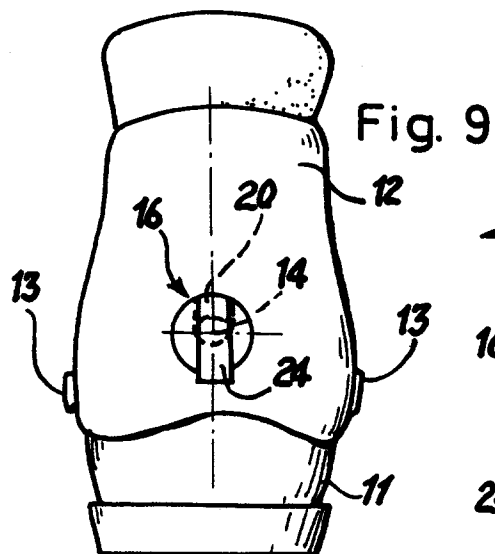
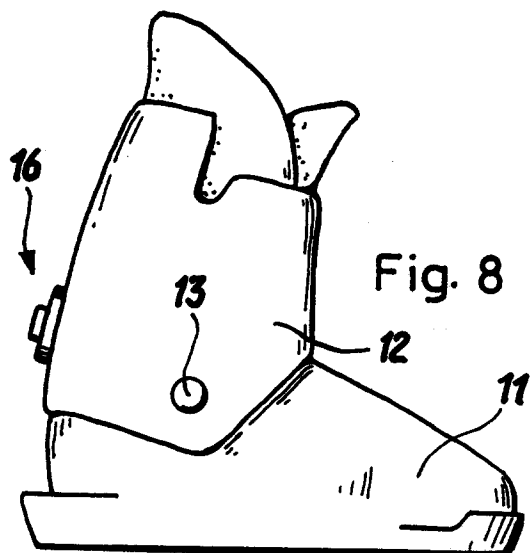
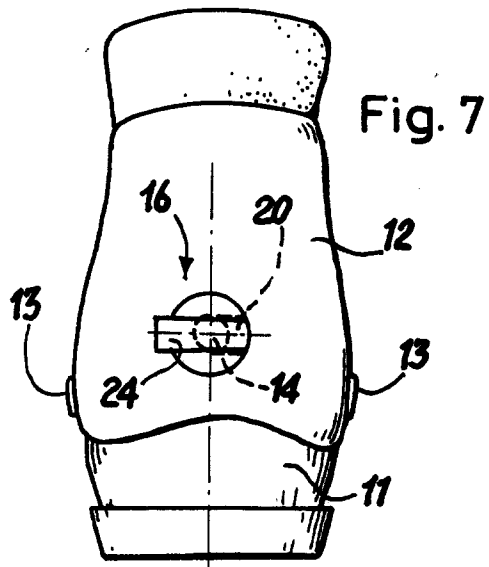
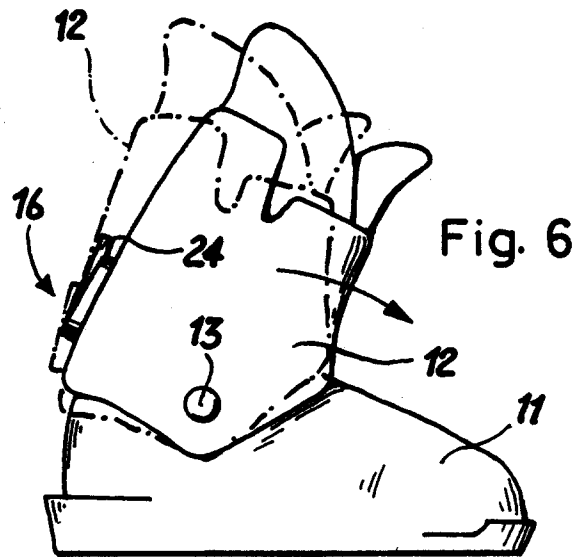
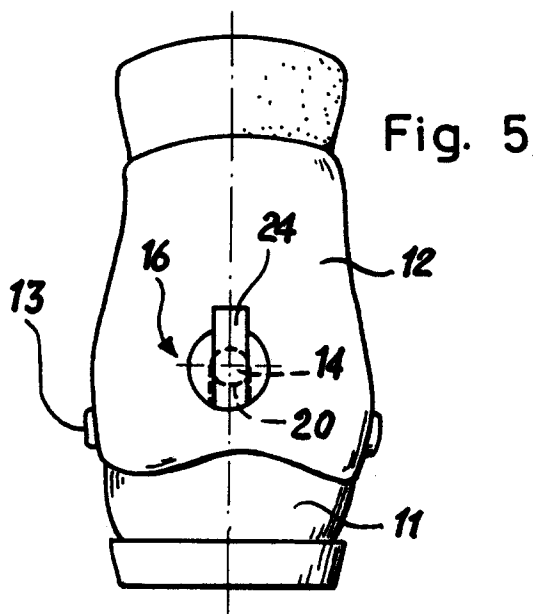


Fig 4





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EUROPEAN SEARCH REPORT

Application Number

EP 93 20 1691

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 150 800 (NORDICA) * the whole document * ---	1	A43B5/04
A	DE-A-2 807 371 (DACHSTEIN) * the whole document * ---	1	
A	DE-A-2 058 969 (J. RIEKER) * the whole document * ---	1	
A	EP-A-0 358 599 (LANGE INT.) * the whole document * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A43B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 OCTOBER 1993	Examiner DECLERCK J.T.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			