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Description

The present invention relates to a ski fastening.

The known ski fastenings are currently usually composed of a heel element and a tip element which are associated with the ski for the engagement of the ends of a ski boot.

Each of said heel and tip elements therefore has adapted and distinct adjustment means for the correct engagement, release and securing of the boot.

This solution however forces the skier to operate separately on the heel element and on the tip element in order to achieve the optimum adjustments.

As a partial solution to this disadvantage, an Austrian patent application no. 190/83, filed on January 21, 1983, discloses a fastening comprising a lateral and a rear engagement elements, adjustment means for both engagement elements being provided on the rear engagement elements.

Said known fastening, however, has the disadvantage of providing a common and simultaneous adjustment for the two engagement elements; such an adjustment can only be a compromise due to the different requirements of the lateral and the rear elements.

An Austrian patent application no. 2622/81, filed on June 12, 1981 is also known to disclose a fastening comprising a front and a rear engagement elements as well as adjustment means interposed therebetween.

Even for this solution, however, there is the disadvantage of having a common and simultaneous adjustment for both of the engagement elements.

It has furthermore been generally observed that possible deflections of the ski during its use are hindered because the heel element and the tip element are not mutually connected. Finally, FR-A-831 226 shows a device for fastening a boot to a ski which comprises a lever mechanism which simultaneously acts on a V-shaped plate which engages with the boot front portion and an elastic band element which engages the rear portion of the boot.

The aim of the present invention is therefore to eliminate the disadvantages described above in known heel and tip type bindings by providing a ski fastening which allows an optimal adjustment of the securing action between the ski and the boot.

Within the scope of the above described aim, an important object is to provide a fastening in which said adjustment can be performed by the skier with localized interventions.

Another important object is to provide a fastening in which at least one of the engagement means can have small dimensions, be structurally simple

and have a simpler design from an aesthetic point of view.

Not least object is to provide a fastening which associates the preceding characteristics with that of being reliable and safe in use.

This aim, these objects and others which will become apparent hereinafter are achieved by a ski fastening according to Claim 1.

Further characteristics and advantages of the invention will become apparent from the detailed description of a particular embodiment, illustrated by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a partially sectional broken top view of the ski fastening;

figure 2 is a side sectional view of the fastening taken along a longitudinal median plane of figure 1;

figure 3 is a view similar to that of figure 2, of a ski fastening according to a second aspect of the invention;

figure 4 is a detailed sectional side view of the rear engagement means of the fastening of figure 3;

figure 5 is a front section partial view of the rear engagement means of figure 4;

figure 6 is a detailed sectional side view of the front engagement means of the fastening of figure 3;

figures 7, 8 and 9 are views, similar to that of figure 2, of ski fastenings respectively according to three further aspects of the invention.

With reference to the above figures, the fastening for a ski, indicated by the reference numeral 1, is constituted by a rear engagement means 2 and by a front engagement means 3 which are associated with the ski 100.

The rear engagement means 2 comprises a heel element 7 pivoted transversely at one end of a case 4 at a first pin 8 adjacent to the ski 100. The heel element 7 engages the heel 5 of a ski boot 6.

A lever 10 is furthermore associated with the heel element 7 at the first pin 8 and at a second pin 9; by turning down the lever 10, toward the underlying ski, said heel element 7 is rotated, consequently lifting the heel 5 of the boot and therefore opening the fastening.

A first seat 11 for a first adjustment means 12 for the heel element 7 is furthermore defined axially within the case 4; said adjustment means is constituted by a first screw 13 which can be inserted at the rear region 14 of the case 4 and compresses a first spring 15 at a point member 16 which is axially slidable in the first seat 11 and engages an adapted cam 17 provided rearward to said heel element 7.

A second seat 18 for a second means 19 for the adjustment of the front engagement means 3 is

defined, below the first seat 11 on the case 4.

Said second seat 18 is also defined axially to the case 4 along an axis which coincides with the longitudinal axis of the ski 100.

The head of a second screw 20 protrudes from the case 4 at said second seat 18 and at the region 14; the stem of said screw is associated with a complementarily threaded seat defined at the stem 21 of a T-shaped lug 22.

A pair of first pins 23a and 23b protrudes at the wings of said lug toward the front engagement means, and a second pair of springs 24a and 24b is arranged coaxially to said pins.

The opposite ends of said pair of springs are arranged coaxially to a pair of second T-shaped pins 25a and 25b which abut respectively at a first 26 and second 27 identical levers, each freely pivoted in a median region respectively at a third pin 28 and at a fourth pin 29 which protrude perpendicular from the base 30 of the case 4. Each lever 26,27 is also freely pivoted, at its other end, to a rod 31 at a single pin which is slidable in adapted first slots 38a and 38b defined at the adjacent ends of the respective first lever 26 and second lever 27.

Said rod 31 is arranged approximately at the median axis of said rear and front engagement means.

Said front engagement means is constituted by a tip element 32 for the engagement of the front end of the ski boot 6 which is slidably associated at a base support 33, which is associated with the ski, by means of an adapted fifth pin 34 rigidly associated with the tip element 32, and is slidable at an adapted second slot 35 defined longitudinally on the base support 33.

Advantageously, said base support and the rod 31 can be extendable or retractable, for example by telescoping, or in any other suitable way, to adjust its length in order to adapt to different boot sizes.

The rod 31 is connected to the tip element 32 by means of a sixth pin 36 which is rigidly associated with the end of said rod 31 and is accommodated at an adapted third seat 37 provided on said tip 32.

Said third seat 37 is V-shaped, with its vertex directed toward the rear engagement means 2.

The use of the fastening is therefore as follows: initially, the skier, acting only at the rear engagement means 2, adjusts the degree of securing of the heel element 7 on the heel 5 of the boot 6 by acting at the first screw 13.

The front engagement means 3 is adjusted by acting again at the second screw 20 associated at the rear engagement means 2; a compression of the second pair of springs 24a and 24b corresponds to a clockwise rotation of said second

screw.

A lateral thrust of the boot at the tip element 32 causes the sliding of the sixth pin 36 at the wings of the third seat 37, causing a translatory motion of the rod 31 toward the tip of the ski; said translatory motion leads to a compression of the second pair of springs 24a and 24b which will oppose the release of the fastening up to a preset limit.

It has thus been observed that the invention has achieved the intended aim and objects, a ski fastening having been obtained in which the means for the adjustment of the tip element and of the heel element can be, for example, integrated in the rear engagement means or, as an alternative, in the front engagement means or, again as an alternative, at the ski, keeping the rear and front adjustments independent and distinct.

The adjustment means can in fact also be provided on the ski, and this allows to locate them in a more convenient portion of the ski, where more room is available.

The fact is furthermore stressed that the illustrated fastening allows an elastic recovery of the plays due to the deflection of the ski in the region of the fastening, since the tip element 32 can slide at the base support 33 due to the presence of the second slot 35.

The fastening according to the invention is naturally susceptible to numerous modifications and variations, all of which are within the scope of the same inventive concept.

Figures 3-5, for example, show a ski fastening 101, according to a further aspect of the invention, comprising a rear engagement means 102 and a front engagement means 103, associated with a ski 100. The fastening 101 is substantially similar to the fastening 1 described above, and the rear engagement means 102 comprises a heel element 107 pivoted at a case 104 and adapted to engage the heel 5 of a ski boot 6. A first adjusting means 112 comprises a first spring 115, adjusted by a first screw 113, and biasing a point member 116 against a heel cam 117 formed on the heel element 107.

A second adjusting means 119 comprises a shaft 121 having a first end 140 connected to a portion 130 of the fastening structure, and a second end inserted and abutting in a hole of a second screw 120. The screw 120 has an external threading engaged with a slider 141 in such a way that, by turning the screw 120, the slider 141 slides with respect to the case 104. A second spring 124 is coaxially arranged on the shaft 121, between the slider 141 and a pusher 125 which can freely slide on the shaft 121. The shaft 121 also has a flange 142 and a third spring 129, arranged between the flange 142 and a portion 144 of the case, for biasing the shaft 121 in abutment with the screw

120. A pair of cams 126 is arranged at the pusher 125, each cam 126 being pivoted, by means of a pivot 127, to the case 104. Each cam 126 has an upper section 128 abutting against the pusher 125, and a lower fork section 145 engaging a transverse cam pivot 138. The cam pivot rod 138 is associated with a longitudinal rod 131 connected with the front engaging means 103. Turning the adjusting second screw 120, adjusts the biasing force of the second spring 124 against the pusher 125, which contrasts the clockwise rotation (with reference to figure 4) of the cam 126 moved by the leftward motion of the rod 131.

With particular reference to figure 6, the front engagement means 103 comprises a tip element 132 pivoted to a base support 133 and adapted to rotate according to a transverse horizontal axis 150 and according to a vertical axis 151. The tip element comprises a horizontal pin 137 which engages a second cam member 136 connected to the longitudinal rod 131. It is apparent that when the tip element is forced to rotate, in the direction of arrows 152 or 153, for example, the pin 137 pushes the cam member 136 toward the left, as indicated by the arrow in figure 4, therefore moving the longitudinal rod 131 rightward.

The operation of the fastening 101 is substantially similar to the operation of fastening 1 described above.

Figures 7-8 schematically illustrates a fastening 201, according to a further aspect of the invention, comprising a rear engagement element 202 and a front engagement element 203, and wherein the first and second adjusting means, respectively 212 and 219, are associated with the front engagement means 203. The first adjusting means 212 acts on the tip element 232 and the second adjusting element 219 acts on the heel element 207, by means of the longitudinal rod 231, substantially as described above.

Figure 9, schematically illustrates a ski fastening 301, according to still a further aspect of the invention, comprising a rear engagement element 302 and a front engagement element 303, and wherein the first and second adjusting means, respectively 312 and 319, are contained in a casing 304 arranged on the ski 100, behind the rear engagement element. The first adjusting means 312 acts on the heel element 307, by means of a first longitudinal rod 331a, while the second adjusting means 319, acts on the tip element 332, by means of a second longitudinal rod 331b.

The fastenings 201 and 301, respectively illustrated in figures 7,8 and 9, also substantially operate as described above in detail.

The materials, as well as the dimensions, may also be the most appropriate according to the specific requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. A ski fastening comprising: a front engagement means (3,103,203,302) for releasably holding down a ski boot front portion; a rear engagement means (2,102,202,302) for releasably holding down a ski boot rear portion; a first adjustment means (12,112,212,312) for said front engagement means; and a second adjustment means (19,119,219,319) for said rear engagement means; the ski fastening being characterized in that both of said first and second adjustment means are arranged on one of said front and rear engagement means for the independent adjustment of both of said front and rear engagement means, and connecting means (26,27,31,131,231,331a,331b) are provided between one of said adjustment means and the other one of said front and rear engagement means.
2. Fastening according to claim 1, characterized in that connecting means (26,27,31,131,231,331a,331b) are provided between said adjustment means and at least one of said front (3) or rear engagement means.
3. Fastening according to claim 1, characterized in that said rear engagement means (2) comprises a case (4), a heel element (7) being transversely pivoted, at a first pin (8) adjacent to said ski (100), at one end of said case which interacts with the heel portion (5) of said boot (6), a lever (10) being furthermore associated with said heel element (7) at said first pin (8) and at a second pin (9), the turning of said lever toward said ski causing the rotation of said heel element, a first seat (11) for a first means (12) for the adjustment of said heel element being defined axially within said case.
4. Fastening according to claim 3, characterized in that said first adjustment means (12) comprises a first screw (13) which can be inserted at the rear region (14) of said case (4) and compresses a first spring (15) at a point member (16) which is slidable axially to said first seat (11) and engages an adapted cam (17) defined rearward to said heel element.

5. Fastening according to claim 3, characterized in that a second seat (18) for a second means (19) for the adjustment of said front engagement means (3) is defined axially to said case (4) below said first seat. 5
6. Fastening according to one or more of the preceding claims, characterized in that the head of a second screw (20) protrudes from said case (4) at said second seat (18) and at said rear region (14), the stem of said second screw being associated with a complementarily threaded seat defined at the stem (21) of a T-shaped lug (22). 10
7. Fastening according to one or more of the preceding claims, characterized in that a pair of first pins (23a,23b) protrudes at the wings of said lug toward said front engagement means (3), a second pair of springs (24a,24b) being arranged respectively coaxially to said first pins, the opposite ends of said second pair of springs being arranged coaxially to a pair of second T-shaped pins (25a,25b) which interact with connecting means (26,27) for connection to said front engagement means. 15 20 25
8. Fastening according to one or more of the preceding claims, characterized in that said connecting means comprise a first (26) and a second (27) identical levers on which said pair of second pins (25a,25b) abuts at one end, said first and second levers being freely pivoted in a median region at a third pin (28) and at a fourth pin (29) which protrude perpendicularly from the base (30) of said case (4), said levers (26,27) being furthermore freely pivoted, at the other end, at an adapted rod (31). 30 35
9. Fastening according to one or more of the preceding claims, characterized in that said first (26) and second (27) levers are freely pivoted to said rod (31) at a single pin which is slidable in adapted first slots (38a,38b) defined on the adjacent ends of respectively said first and second levers. 40 45
10. Fastening according to one or more of the preceding claims, characterized in that said rod (31) is arranged approximately at the median axis of said front (3) and rear (2) engagement means, said front engagement means comprising a tip element (32) for the engagement of the front end of said boot (6) which is slidably associated at a base support (33) which is associated with the ski by means of an adapted fifth pin (34) which is rigidly associated with said tip element and is slidable at an adapted second slot (35) defined longitudinally on said base support (33). 50 55
11. Fastening according to one or more of the preceding claims, characterized in that said base support (33) and said rod (31) are telescoping, or in any way variable in length.
12. Fastening according to one or more of the preceding claims, characterized in that said rod (31) is connected to said tip element (32) by means of an adapted sixth pin (36) which is rigidly associated with the end of said rod (31) and is accommodated at an adapted third seat (37) defined on said tip element (32).
13. Fastening according to one or more of the preceding claims, characterized in that said third seat (37) has a V-shaped configuration with its vertex directed toward the rear engagement means (2).
14. Fastening, according to claim 1, characterized in that said rear engagement means (102) comprises a heel element (107) adapted to engage the heel (5) of said ski boot (6), and said front engagement means (103) comprises a tip element (132) adapted to engage the tip of said ski boot, said rear engagement means comprising a case (104) having a first adjusting means (112) and a second adjusting means (119) for respectively said heel element and said tip element, said first adjusting means comprising a first spring (115) biasing a point member (116) against a heel cam (117) formed on said heel element (107), a first screw (113) being provided to engage said first spring (115) for adjusting the biasing force of said spring against said heel cam of said heel element, said second adjusting means comprising a second spring (124), at least one cam (126) pivoted at said case (104), a pusher (125) arranged at said at least one cam, a second screw (120), and longitudinal rod (131) having an end (138) pivoted to a fork end (145) of said at least one cam (126) in such a way that a sliding motion of said rod (131) corresponds to an oscillation of said cam, said second spring biasing said pusher against said cam to contrast said oscillation, said second screw being adapted to adjust the biasing force of said second spring; said longitudinal rod (131) having a tip end opposite to said end (138) pivoted to said cam, said tip end having a second tip cam member (136), said tip cam member (136) engaging a pin (137) associated with said tip element (132), said tip element being allowed a rotation for disengaging said tip of

said boot (6), said rotation of said tip element being contrasted, through said longitudinal rod (131), by said second spring (124).

15. Fastening, according to claim 1, characterized in that said front engagement means (203) comprises a tip element adapted to engage the tip of said boot, and said rear engagement means (202) comprises a heel element (207) adapted to engage the heel of said boot, said front engagement means further comprising a first adjusting means (212) and a second adjusting means (219), said second adjusting means being adapted to adjust the engaging force of said tip element, said first adjusting means being adapted to adjust the engaging force of said heel element, through a longitudinal rod (231). 5 10 15
16. Fastening, according to claim 1, characterized in that said front engagement means (303) comprises a tip element (332) adapted to engage the tip of said boot, and said rear engagement means (302) comprises a heel element (307) adapted to engage the heel of said boot, said fastening further comprising a casing (304) associated with said ski, said casing comprising a first adjusting means (312) and a second adjusting means (319), said first adjusting means being adapted to adjust the engaging force of said heel element (307), through a first longitudinal rod (331a), said second adjusting means being adapted to adjust the engaging force of said tip element (332) through a second longitudinal rod (331b). 20 25 30 35

Patentansprüche

1. Skibindung, enthaltend: ein vorderes Eingriffsmittel (3, 103, 203, 303) zum lösbaren Niederhalten eines Skischuhvorderteils; ein hinteres Eingriffsmittel (2, 102, 202, 302) zum lösbaren Niederhalten eines Skischuhhinterteils; ein erstes Einstellmittel (12, 112, 212, 312) für das vordere Eingriffsmittel; und ein zweites Einstellmittel (19, 119, 219, 319) für das hintere Eingriffsmittel; wobei die Skibindung dadurch gekennzeichnet ist, daß sowohl das erste als auch das zweite Einstellmittel auf einem der vorderen und hinteren Eingriffsmittel vorgesehen sind, um sowohl das vordere als auch das hintere Eingriffsmittel unabhängig voneinander einzustellen und daß Verbindungsmittel (26, 27, 31, 131, 231, 331a, 331b) zwischen einem der Einstellmittel und dem anderen vorderen und hinteren Eingriffsmittel angeordnet sind. 40 45 50 55
2. Bindung nach Anspruch 1, dadurch gekennzeichnet, daß die Verbindungsmittel (26, 27, 31, 131, 231, 331a, 331b) zwischen dem Einstellmittel und wenigstens einem der vorderen (3) oder hinteren Eingriffsmittel vorgesehen sind.
3. Bindung nach Anspruch 1, gekennzeichnet durch das hintere Eingriffsmittel (2), enthaltend ein Gehäuse (4), ein Absatzelement (7), das quer an einem ersten Stift (8) in der Nähe des Skis (100), an einem Ende des Gehäuses drehbar gehalten ist und das mit dem Absatzelement (5) des Schuhs (6) zusammenwirkt, einen Hebel, der ferner mit dem Absatzelement (7) am ersten Stift (8) und an einem zweiten Stift (9) verbunden ist, wobei ein Drehen des Hebels in Richtung des Skis eine Drehung des Absatzelementes bewirkt, sowie einen ersten Sitz (11) für ein erstes Einstellmittel (12) für das Absatzelement, der axial innerhalb des Gehäuses vorgesehen ist.
4. Bindung nach Anspruch 3, gekennzeichnet durch das erste Einstellmittel (12), enthaltend eine erste Schraube (13), die am hinteren Bereich (14) des Gehäuses (4) eingeführt werden kann und eine erste Feder (15) an einem spitzen Teil (16) zusammendrückt, der axial zum ersten Sitz (11) verschiebbar ist und in eine angepaßte Nocke (17) eingreift, die hinter dem Absatzelement vorgesehen ist.
5. Bindung nach Anspruch 3, dadurch gekennzeichnet, daß ein zweiter Sitz (18) für ein zweites Einstellmittel (19) für das vordere Eingriffsmittel (3) axial zum Gehäuse (4) unterhalb des ersten Sitzes vorgesehen ist.
6. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß sich der Kopf einer zweiten Schraube (20) beim zweiten Sitz (18) vom Gehäuse (4) erstreckt und daß im hinteren Bereich (14) der Schaft der zweiten Schraube mit einem Sitz in Verbindung steht, der ein komplementär gestaltetes Gewinde aufweist und am Schaft (21) eines T-förmigen Zapfens (22) vorgesehen ist.
7. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß ein Paar von ersten Stiften (23a, 23b) sich an den Flügeln des Zapfens in Richtung des vorderen Eingriffsmittels (3) erstrecken und daß ein zweites Paar von Federn (24a, 24b) jeweils coaxial zu den ersten Stiften angeordnet ist, wobei die gegenüberliegenden En-

den des zweiten Paares von Federn koaxial zu einem Paar von zweiten T-förmigen Stiften (25a, 25b) angeordnet sind, die mit Verbindungsmitteln (26, 27) zur Verbindung mit den vorderen Eingriffsmitteln zusammenwirken.

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8. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Verbindungsmittel einen ersten (26) und einen zweiten (27) gleichartigen Hebel enthalten, an dem das Paar von zweiten Stiften (25a, 25b) an einem Ende anliegt, wobei der erste und zweite Hebel frei drehbeweglich in einem Mittelbereich an einem dritten Stift (28) und an einem vierten Stift (29) gehalten sind, die sich quer zur Grundplatte (30) des Gehäuses (4) erstrecken und wobei die Hebel (26, 27) weiterhin an dem anderen Ende frei drehbeweglich an einer angepaßten Stange (31) gehalten sind.
9. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der erste (26) und zweite (27) Hebel frei drehbeweglich an der Stange (31) an einem einzelnen Stift gehalten sind, der in angepaßten ersten Schlitzen (38a, 38b) verschiebbar ist, die jeweils an den anliegenden Enden des ersten und zweiten Hebels vorgesehen sind.
10. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Stange (31) etwa bei der Mittelachse des vorderen (3) und hinteren (2) Eingriffsmittels angeordnet ist, wobei das vordere Eingriffsmittel ein vorderes Element (32) zum Eingriff mit dem vorderen Ende des Skischuhs enthält, welches verschiebbar an einem Hauptlager (33) angeordnet ist, das mit dem Ski mittels eines angepaßten fünften Stiftes (34) verbunden ist, der fest mit dem vorderen Element verbunden ist und in einem angepaßten, in Längsrichtung auf dem Hauptlager (33) vorgesehenen zweiten Schlitz (35) verschiebbar ist.
11. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Hauptlager (33) und die Stange (31) teleskopartig oder in einer anderen Weise in der Länge variabel ausgebildet ist.
12. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Stange (31) mit dem vorderen Element (32) über einen angepaßten sechsten Stift (36) verbunden ist, der fest an

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dem Ende der Stange (31) angeordnet ist und in einem angepaßten, am vorderen Element (32) vorgesehenen dritten Sitz (37) untergebracht ist.

13. Bindung nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der dritte Sitz (37) V-förmig ausgebildet ist und dessen Spitze in Richtung des hinteren Eingriffsmittels (2) zeigt.

14. Bindung nach Anspruch 1, dadurch gekennzeichnet, daß das hintere Eingriffsmittel (102) ein zum Eingriff mit dem Absatz (5) des Skischuhs (6) angepaßtes Absatzelement (107) enthält und das vordere Eingriffsmittel (103) ein zum Eingriff mit der Spitze des Skischuhs angepaßtes vorderes Element (132) enthält, wobei das hintere Eingriffsmittel ein Gehäuse (104) aufweist mit einem ersten Einstellmittel (112) und einem zweiten Einstellmittel (119) für das Absatzelement bzw. das vordere Element, wobei das erste Einstellmittel eine erste Feder (115) zur Vorspannung eines spitzen Teils (116) gegen eine am Absatzelement (107) ausgebildete Absatznocke (117) enthält und eine an der ersten Feder angreifende erste Schraube (113) vorgesehen ist, um die Vorspannkraft der Feder gegen die Absatznocke des Absatzelementes einzustellen, und wobei das zweite Einstellmittel eine zweite Feder (124), wenigstens eine drehbar am Gehäuse (104) gehaltene Nocke (126), einen an der Nocke angeordneten Schieber (125), eine zweite Schraube (120) und eine Längsstange (131) enthält, die mit einem Ende (138) drehbar an einem gabelförmigen Ende (145) der Nocke (126) derart gehalten ist, daß eine Verschiebung der Stange (131) einer Schwenkung der Nocke entspricht, wobei die zweite Feder den Schieber gegen die Nocke als Gegenreaktion auf die Schwenkung vorspannt, und wobei die zweite Schraube zur Einstellung der Vorspannkraft der zweiten Feder ausgebildet ist; und wobei die Längsstange (131) gegenüber dem drehbar mit der Nocke verbundenen Ende (138) ein spitzes Ende mit einem zweiten spitzen Nockenteil (136) aufweist, wobei der spitze Nockenteil (136) in einen Stift (137) eingreift, der am vorderen Element (132) angeordnet ist, wobei das vordere Element drehbar ist, um die Spitze des Schuhs (6) außer Eingriff zu bringen, wobei die zweite Feder (124) über die Längsstange (130) der Drehung des vorderen Elementes entgegenwirkt.

15. Bindung nach Anspruch 1, dadurch gekennzeichnet, daß das vordere Eingriffsmittel (203)

ein vorderes Element enthält, um die Spitze des Schuhs festzuhalten und das hintere Eingriffsmittel (202) ein Absatzelement (207) enthält, um den Absatz des Schuhs festzuhalten, wobei das vordere Eingriffsmittel ferner ein erstes Einstellmittel (212) und ein zweites Einstellmittel (219) enthält, wobei das zweite Einstellmittel zur Einstellung der Festhaltekraft des vorderen Elementes und das erste Einstellmittel zur Einstellung der Festhaltekraft des Absatzelementes über eine Längsstange (231) angepaßt sind.

16. Bindung nach Anspruch 1, dadurch gekennzeichnet, daß das vordere Eingriffsmittel (303) ein vorderes Element (332) enthält, um die Spitze des Schuhs festzuhalten und daß das hintere Eingriffsmittel (302) ein Absatzelement (307) enthält, um den Absatz des Schuhs festzuhalten, wobei die Bindung weiterhin ein Gehäuse (304) enthält, das mit dem Ski verbunden ist, wobei das Gehäuse ein erstes Einstellmittel (312) und ein zweites Einstellmittel (319) enthält, wobei das erste Einstellmittel zur Einstellung der Festhaltekraft des Absatzelementes (307) über eine erste Längsstange (331a) und das zweite Einstellmittel zur Einstellung der Festhaltekraft des vorderen Elementes (332) über eine zweite Längsstange (331b) angepaßt ist.

Revendications

1. Fixation de ski comportant : un moyen d'engagement antérieur (3, 103, 203, 303) pour assujettir de façon amovible la partie antérieure d'une chaussure de ski ; un moyen d'engagement postérieur (2, 102, 202, 302) pour assujettir de façon amovible la partie postérieure d'une chaussure de ski ; un premier moyen de réglage (12, 112, 212, 312) pour ledit moyen d'engagement antérieur; et un second moyen de réglage (19, 119, 219, 319) pour ledit moyen d'engagement postérieur ; la fixation de ski étant caractérisée en ce que lesdits premier et second moyens de réglage sont disposés sur l'un desdits moyens d'engagement antérieur et postérieur pour un réglage indépendant à la fois desdits moyens d'engagement antérieur et postérieur, des moyens de liaison (26, 27, 31, 131, 231, 331a, 331b) étant prévus entre l'un desdits moyens de réglage et l'autre desdits moyens d'engagement antérieur et postérieur.
2. Fixation selon la revendication 1, caractérisée en ce que des moyens de liaison (26, 27, 31, 131, 231, 331a, 331b) sont prévus entre lesdits

moyens de réglage et au moins l'un desdits moyens d'engagement antérieur (3) ou postérieur.

3. Fixation selon la revendication 1, caractérisée en ce que ledit moyen d'engagement postérieur (2) comporte un boîtier (4), un élément de talon (7) pivotant transversalement par rapport à une première tige (8) adjacente audit ski (100), à une extrémité dudit boîtier qui coopère avec la partie de talon (5) de ladite chaussure (6), un levier (10) étant en outre associé audit élément de talon (7) sur ladite première tige (8) et sur une seconde tige (9), la rotation dudit levier vers ledit ski provoquant la rotation dudit élément de talon, un premier siège (11) pour un premier moyen (12) en vue du réglage dudit élément de talon étant défini axialement à l'intérieur dudit boîtier.
4. Fixation selon la revendication 3, caractérisée en ce que ledit premier moyen de réglage (12) comporte une première vis (13) qui peut être introduite dans la région postérieure (14) dudit boîtier (4) et comprime un premier ressort (15) sur un élément pointu (16) qui peut coulisser axialement par rapport audit premier siège (11) et se trouve en contact d'une came adaptée (17) définie postérieurement sur ledit élément de talon.
5. Fixation selon la revendication 3, caractérisée en ce qu'un second siège (18) pour un second moyen (19) pour le réglage dudit moyen d'engagement antérieur (3) est défini axialement audit boîtier (4) au-dessous dudit premier siège.
6. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que la tête d'une seconde vis (20) fait saillie dudit boîtier (4) sur ledit second siège (18) et sur ladite région postérieure (14), la tige de ladite seconde vis étant associée à un siège taraudé de façon complémentaire défini sur la tige (21) d'une patte (22) en forme de T.
7. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce qu'une paire de premières tiges (23a, 23b) fait saillie sur les ailes de ladite patte vers ledit moyen d'engagement antérieur (3), une seconde paire de ressorts (24a, 24b) étant disposés respectivement coaxialement auxdites premières tiges, les extrémités opposées de ladite seconde paire de ressorts étant disposées coaxialement à une paire de secondes tiges (25a, 25b) en forme de T qui coopèrent avec des moyens de

- liaison (26, 27) pour une liaison avec ledit moyen d'engagement antérieur.
8. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que lesdits moyens de liaison comportent un premier (26) et un second (27) leviers identiques sur lesquels ladite paire de secondes tiges (25a, 25b) butent à une extrémité, lesdits premier et second leviers pouvant pivoter librement dans une région médiane par rapport à une troisième tige (28) et à une quatrième tige (29) qui font saillie perpendiculairement depuis la base (30) dudit boîtier (4), lesdits leviers (26, 27) pouvant en outre pivoter librement, à l'autre extrémité, sur une tige adaptée (31). 5 10 15
 9. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que lesdits premier (26) et second (27) leviers pivotent librement sur ladite tige (31) par rapport à une unique tige pouvant coulisser dans des premières fentes adaptées (38a, 38b) ménagées sur les extrémités adjacentes desdits premier et second leviers respectivement. 20 25
 10. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que ladite tige (31) est disposée approximativement sur l'axe médian desdits moyens d'engagement antérieur (3) et postérieur (2), ledit moyen d'engagement antérieur comportant un élément d'extrémité de tête (32) pour l'engagement de l'extrémité antérieure de ladite chaussure (6) qui est associé à coulissement à un support de base (33) qui est associé au ski au moyen d'une cinquième tige adaptée (34) qui est associée de façon rigide audit élément d'extrémité de tête et peut coulisser dans une seconde fente adaptée (35) ménagée longitudinalement sur ledit support de base (33). 30 35 40
 11. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que ledit support de base (33) et ladite tige (31) sont télescopiques ou variables en longueur d'une manière quelconque. 45
 12. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que ladite tige (31) est reliée audit élément d'extrémité de tête (32) au moyen d'une sixième tige adaptée (36) qui est associée de façon rigide à l'extrémité de ladite tige (31) et est reçue dans un troisième siège adapté (37) ménagé sur ledit élément d'extrémité de tête (32). 50 55
 13. Fixation selon l'une quelconque des revendications précédentes, caractérisée en ce que ledit troisième siège (37) possède une configuration en forme de V avec son sommet dirigé vers le moyen d'engagement postérieur (2).
 14. Fixation selon la revendication 1, caractérisée en ce que ledit moyen d'engagement postérieur (102) comporte un élément de talon (107) apte à coopérer avec le talon (5) de ladite chaussure de ski (6), et ledit moyen d'engagement antérieur (103) comporte un élément d'extrémité de tête (32) apte à coopérer avec l'extrémité avant de ladite chaussure de ski, ledit moyen d'engagement postérieur comportant un boîtier (104) possédant un premier moyen de réglage (112) et un second moyen de réglage (119) pour ledit élément de talon et ledit élément d'extrémité respectivement, ledit premier moyen de réglage comportant un premier ressort (115) sollicitant un élément pointu (116) contre une came de talon (117) formée sur ledit élément de talon (107), une première vis (113) étant prévue pour venir en contact dudit premier ressort (115) pour régler la force de sollicitation dudit ressort contre ladite came de talon dudit élément de talon, ledit second moyen de réglage comportant un second ressort (124), au moins une came (126) pouvant pivoter sur ledit boîtier (104), un poussoir (125) disposé sur ladite au moins une came, une seconde vis (120), et une tige longitudinale (131) possédant une extrémité (138) pivotant par rapport à une extrémité fourchue (145) de ladite au moins une came (126) de telle manière qu'un déplacement à coulissement de ladite tige (131) correspond à une oscillation de ladite came, ledit second ressort sollicitant ledit poussoir contre ladite came pour contrarier ladite oscillation, ladite seconde vis étant apte à régler la force de sollicitation dudit second ressort ; ladite tige longitudinale (131) possédant une extrémité de tête opposée à ladite extrémité (138) pivotant par rapport à ladite came, ladite extrémité de tête possédant un second élément de came d'extrémité de tête (136), ledit élément de came d'extrémité de tête (136) coopérant avec une tige (137) associée audit élément d'extrémité de tête (132), ledit élément d'extrémité de tête pouvant décrire une rotation pour un dégagement de ladite extrémité avant de ladite chaussure (6), ladite rotation dudit élément d'extrémité de tête étant contrariée, par l'intermédiaire de ladite tige longitudinale (131), par ledit second ressort (124).

15. Fixation selon la revendication 1, caractérisée en ce que ledit moyen d'engagement antérieur (203) comporte un élément d'extrémité de tête apte à coopérer avec l'extrémité avant de ladite chaussure, et ledit moyen d'engagement postérieur (202) comporte un élément de talon (207) apte à venir en contact du talon de ladite chaussure, ledit moyen d'engagement antérieur comportant en outre un premier moyen de réglage (212) et un second moyen de réglage (219), ledit second moyen de réglage étant apte à régler la force de contact dudit élément d'extrémité de tête, ledit premier moyen de réglage étant apte à régler la force d'engagement dudit élément de talon, par l'intermédiaire d'une tige longitudinale (231).
16. Fixation selon la revendication 1, caractérisée en ce que ledit moyen d'engagement antérieur (303) comporte un élément d'extrémité de tête (332) apte à venir en contact de l'extrémité avant de ladite chaussure et ledit moyen d'engagement postérieur (302) comporte un élément de talon (307) apte à venir en contact du talon de ladite chaussure, ladite fixation comportant en outre un boîtier (304) associé audit ski, ledit boîtier comportant un premier moyen de réglage (312) et un second moyen de réglage (319), ledit premier moyen de réglage étant apte à régler la force de contact dudit élément de talon (307), par l'intermédiaire d'une première tige longitudinale (331a), ledit second moyen de réglage étant apte à régler la force de contact dudit élément d'extrémité de tête (332) par l'intermédiaire d'une seconde tige longitudinale (331b).

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