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(54) **DEVICE FOR RETAINING A BOOT ON A SPORTS APPARATUS**

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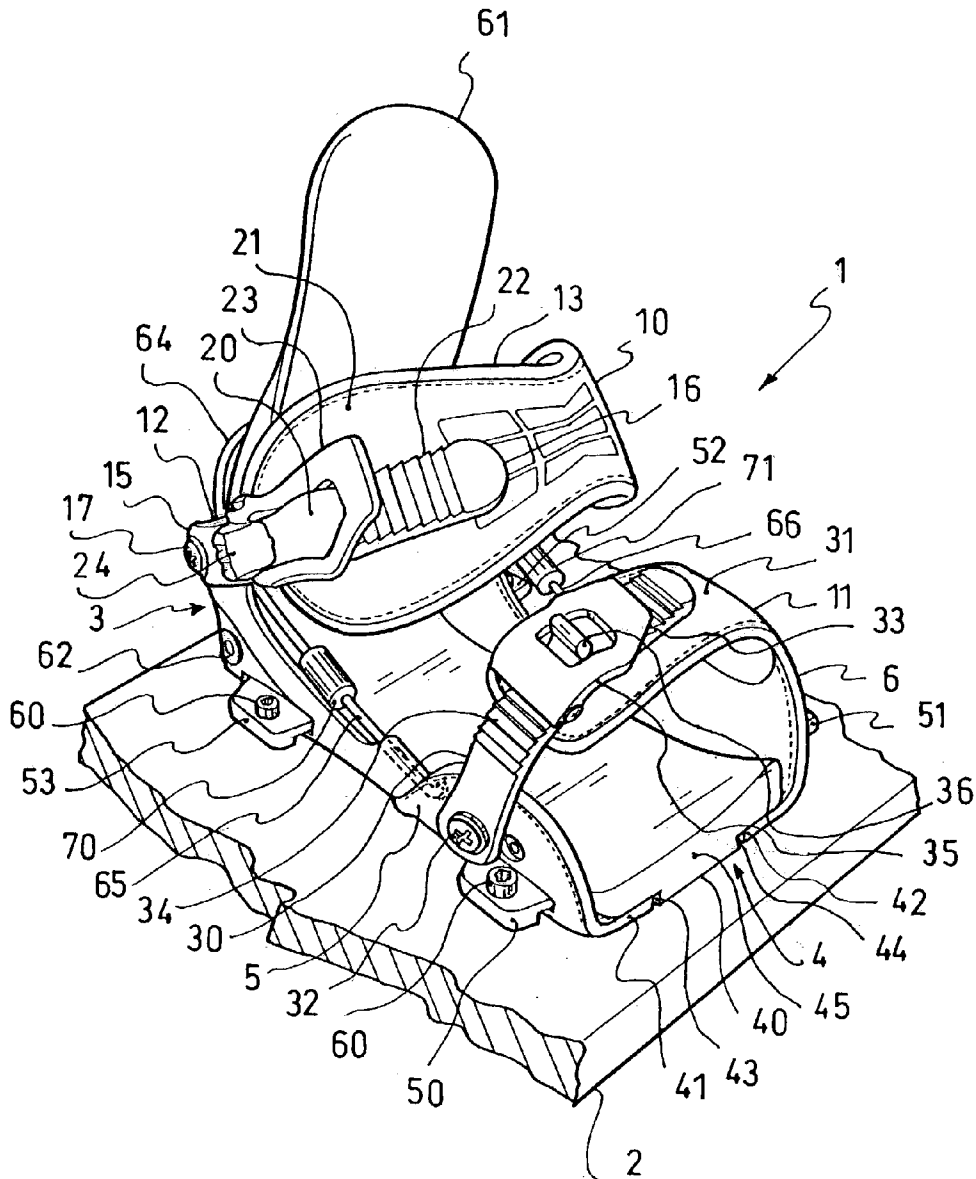
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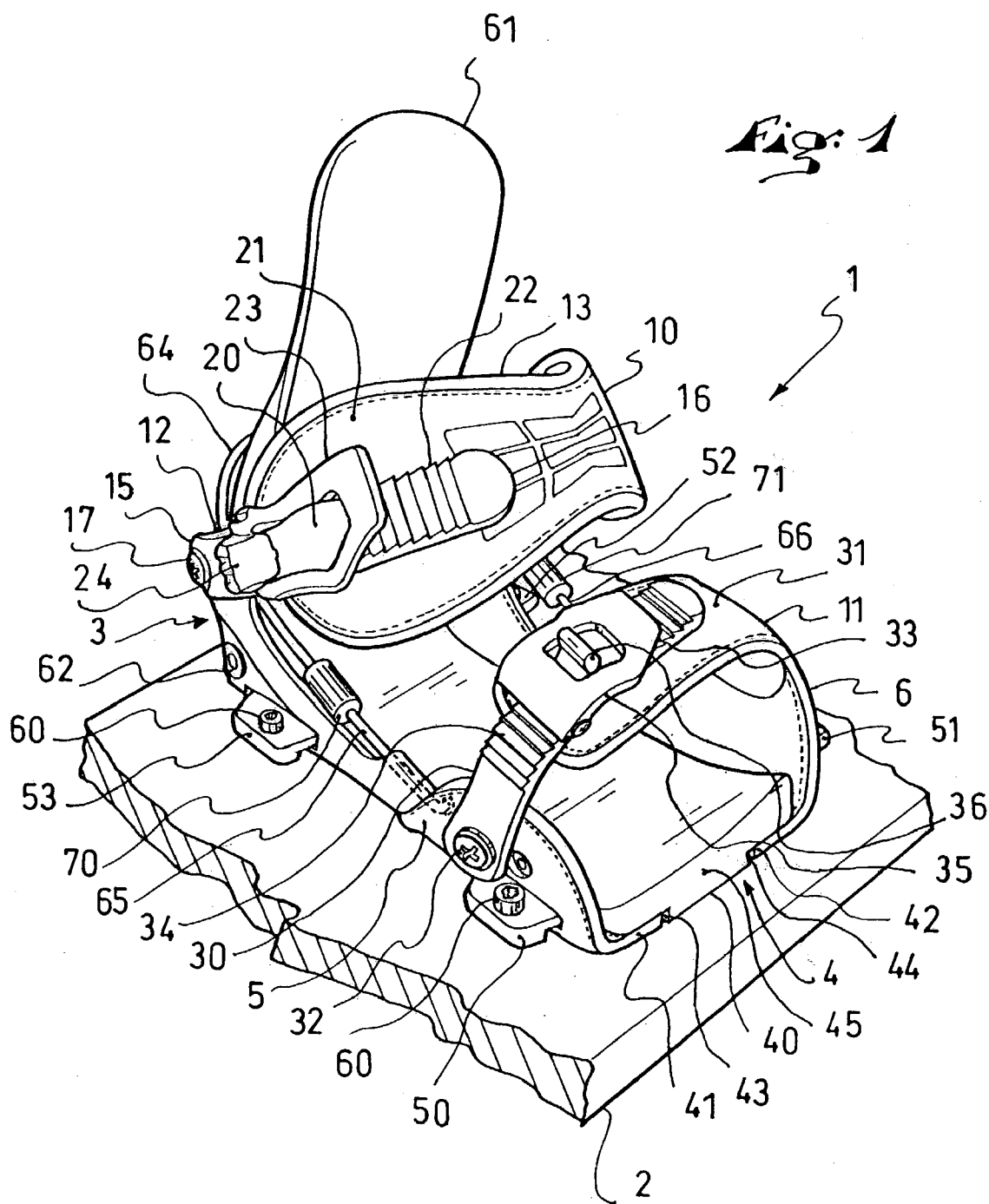
(57) **ABSTRACT**

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A device for retaining a boot on a sports apparatus, the device having a lateral flange, a medial flange, and at least one strap that connects the lateral flange to the medial flange. At least one of the flanges is flexible or semi-rigid.

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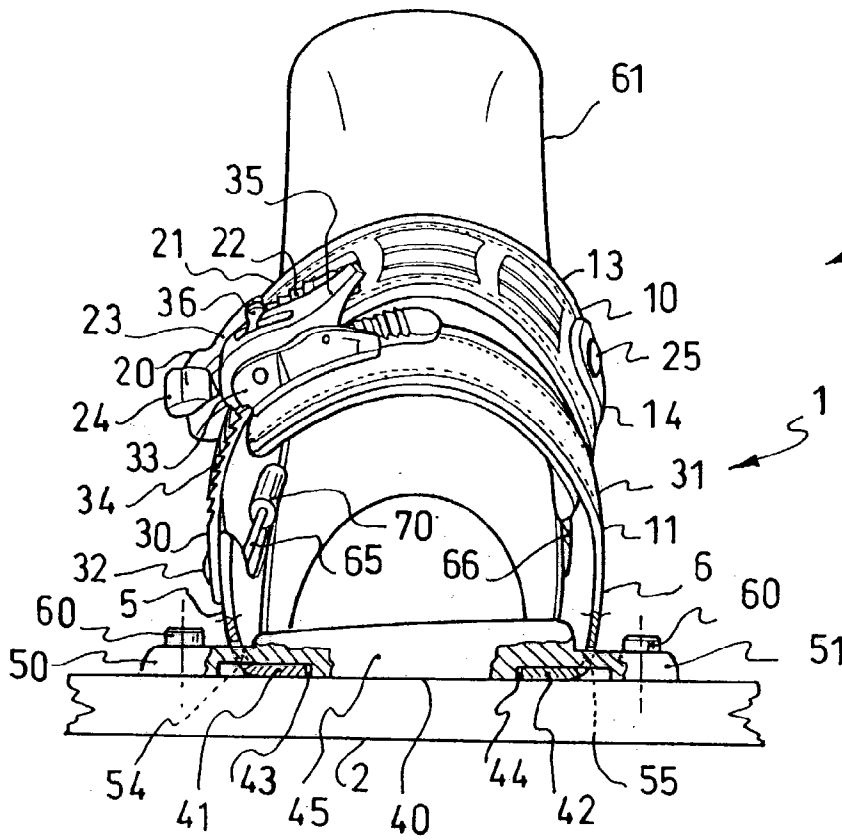
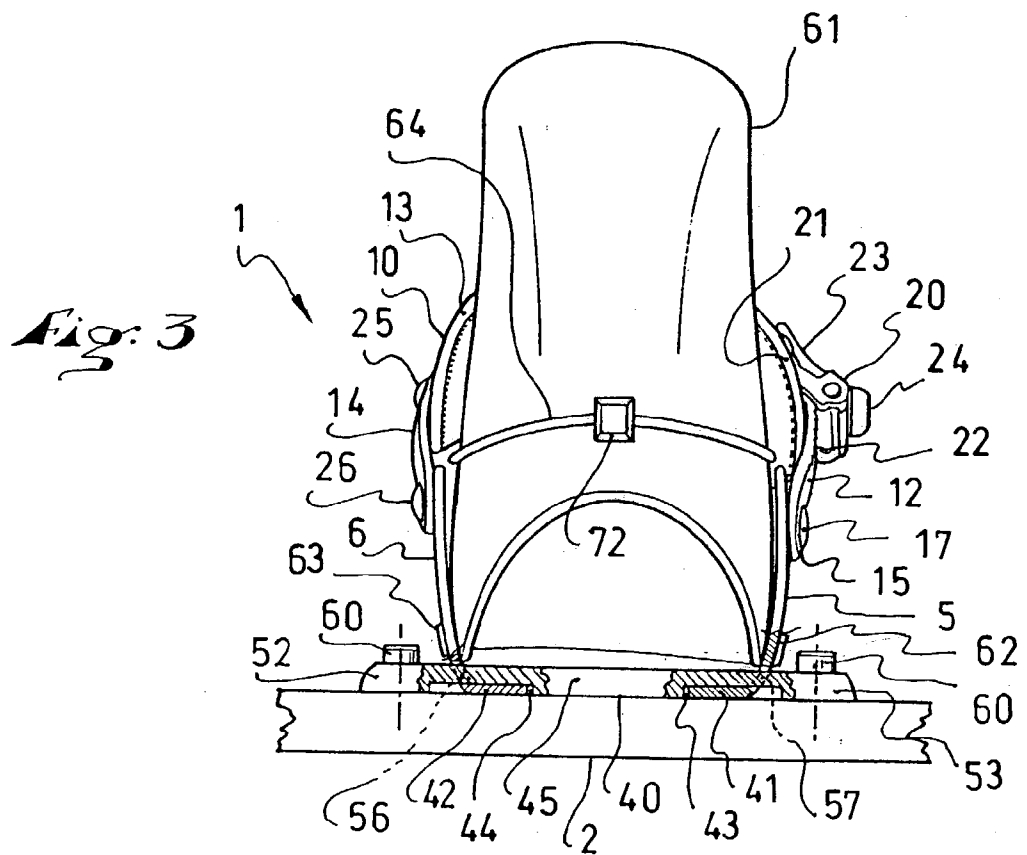


Fig. 2



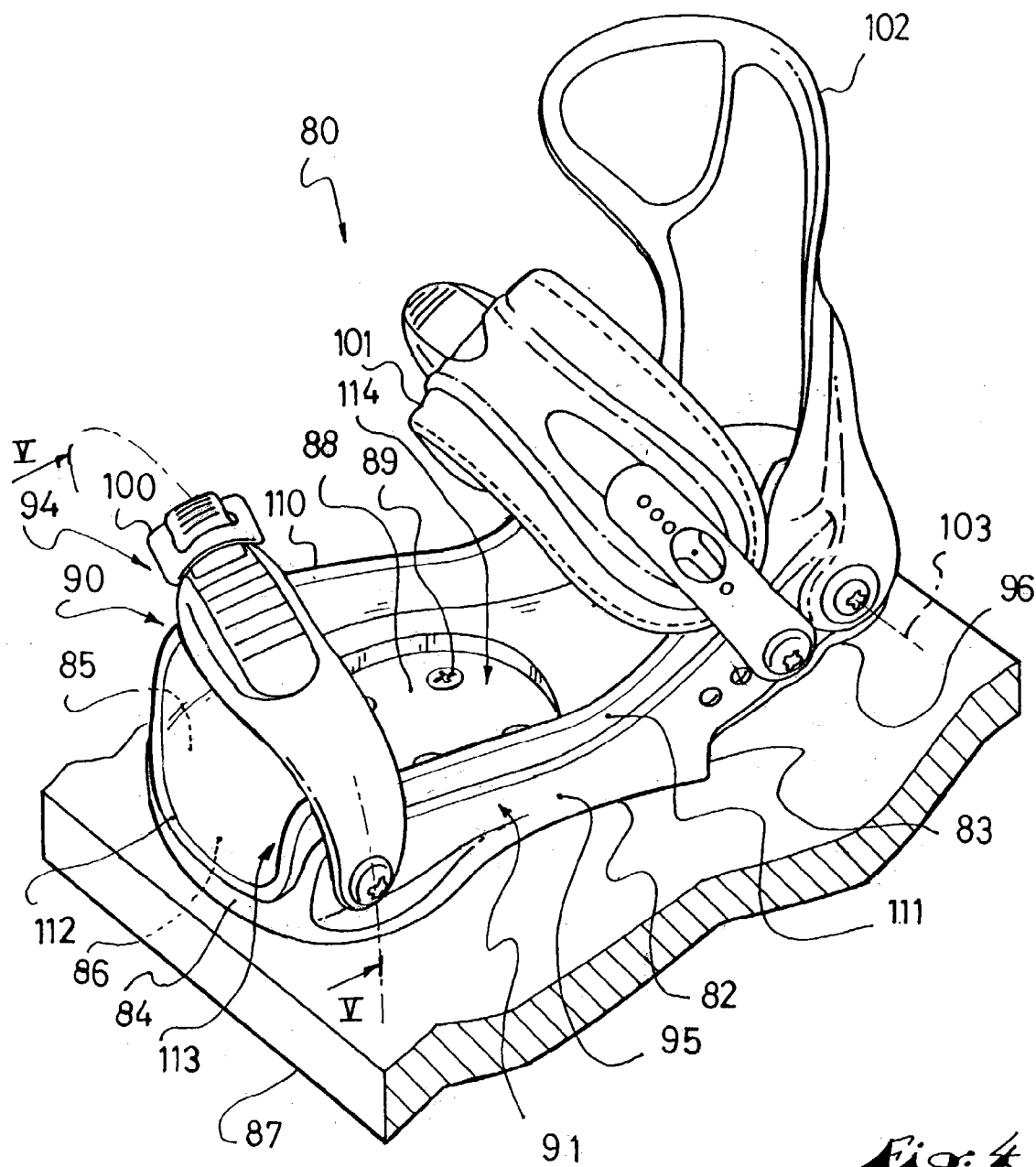
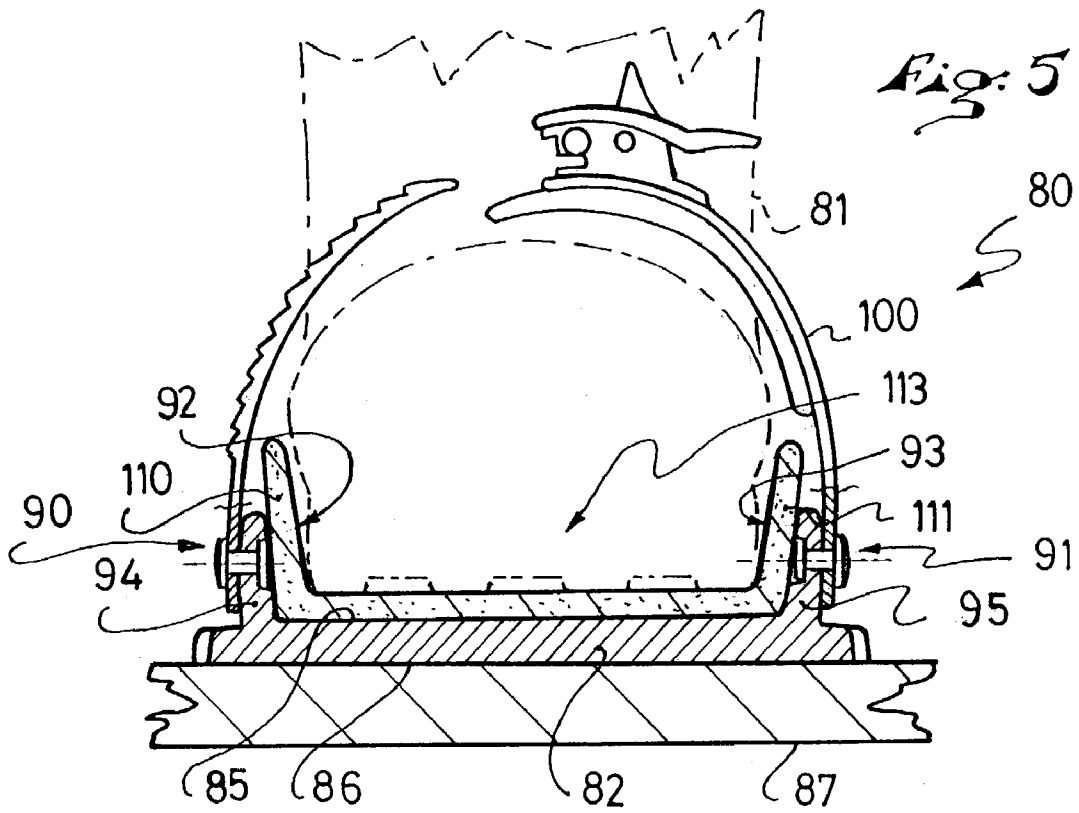
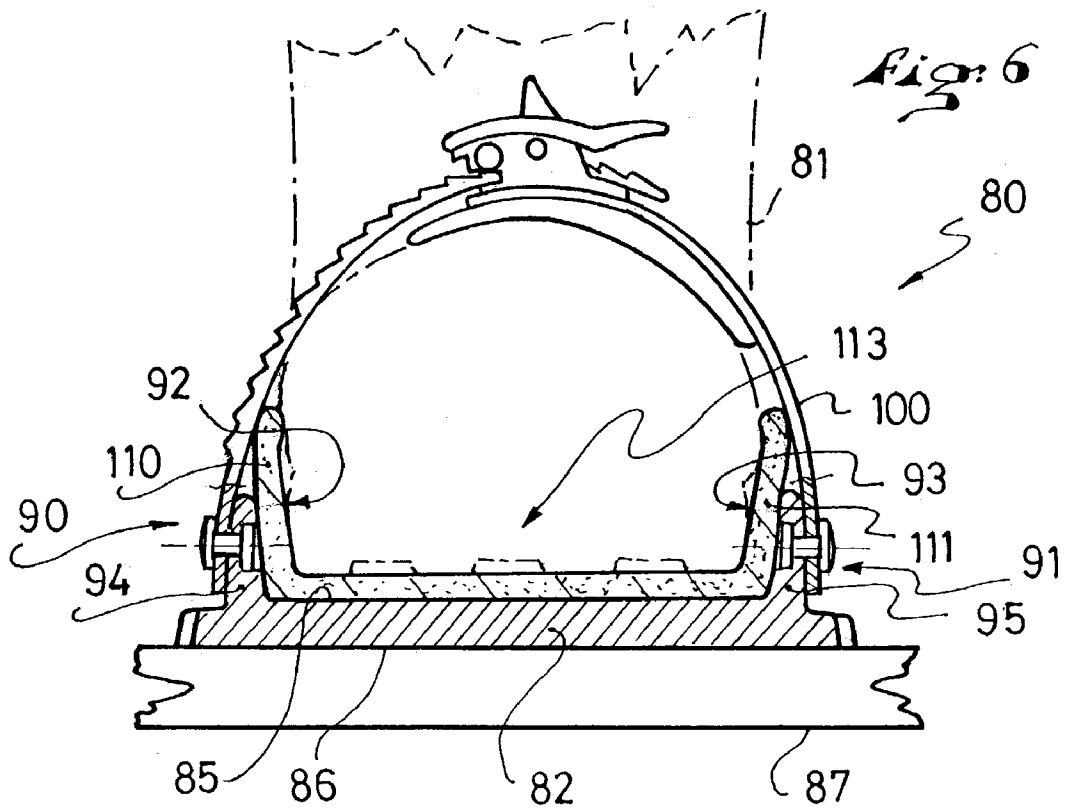


Fig. 4



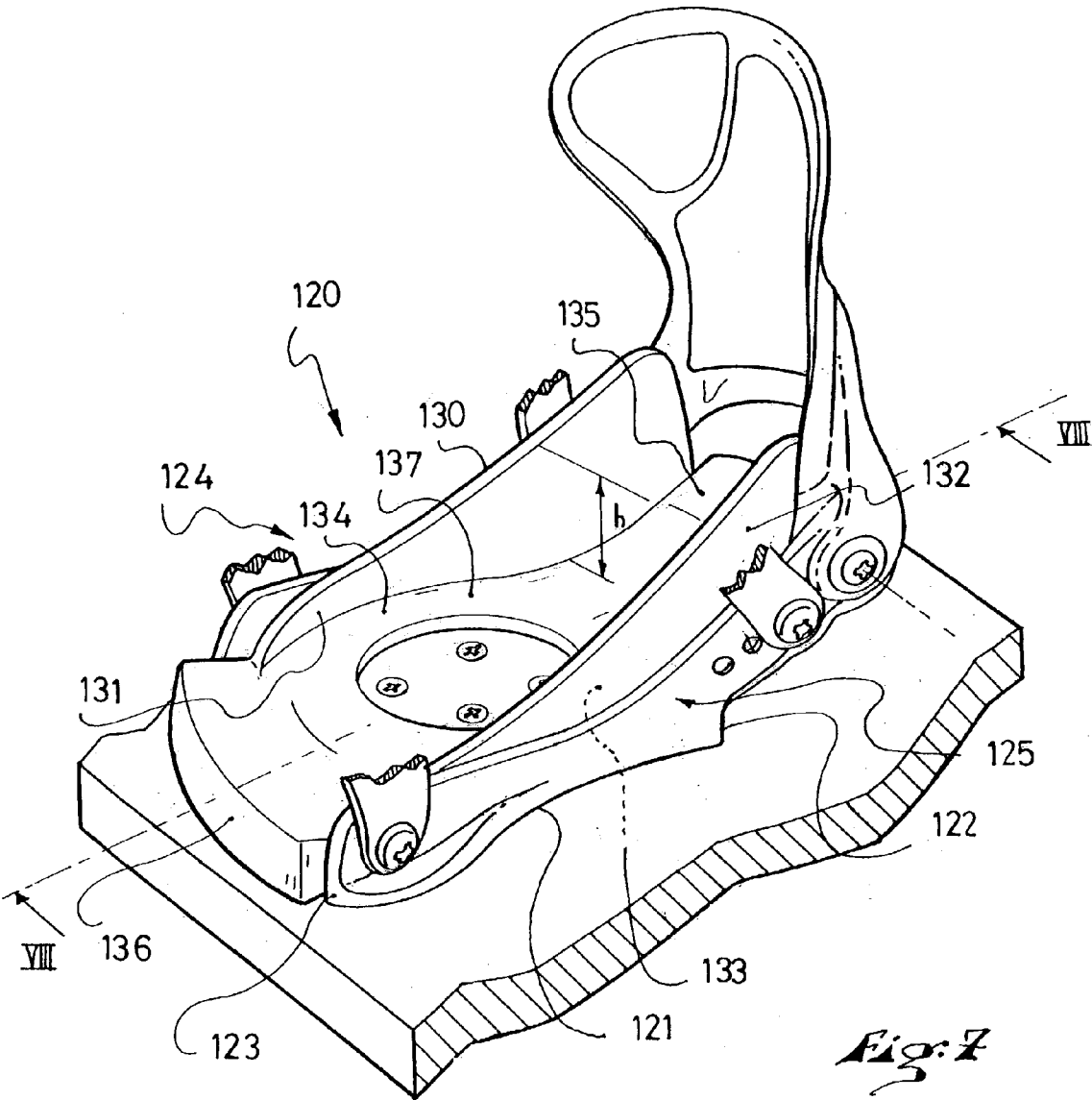


Fig. 8

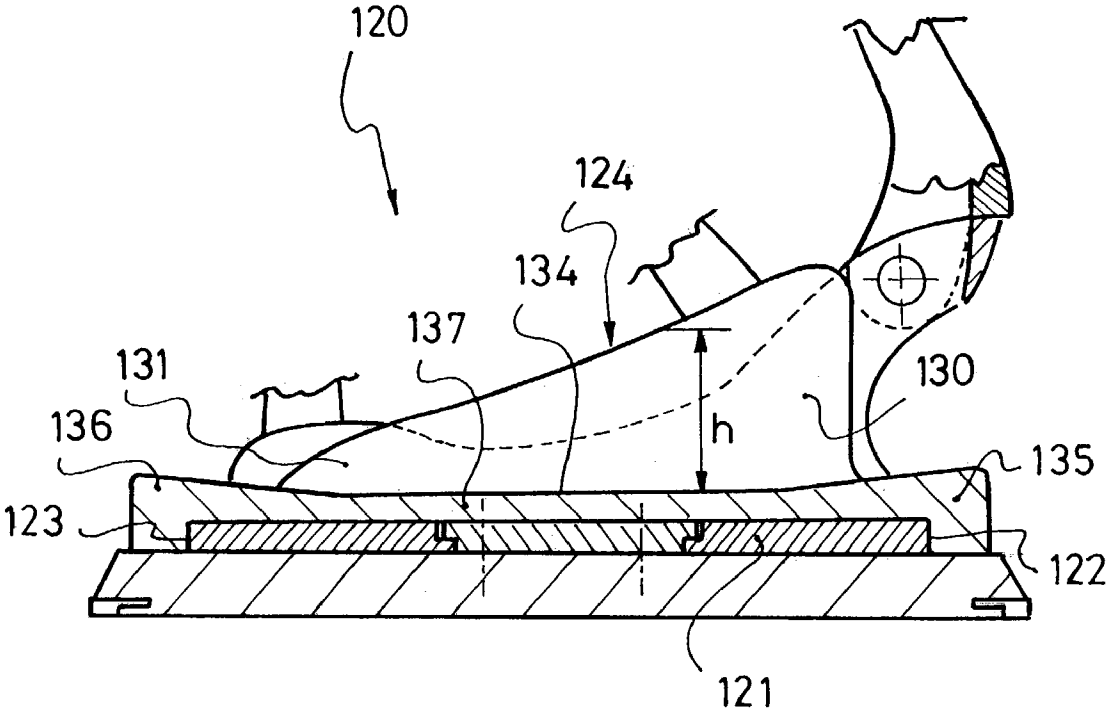
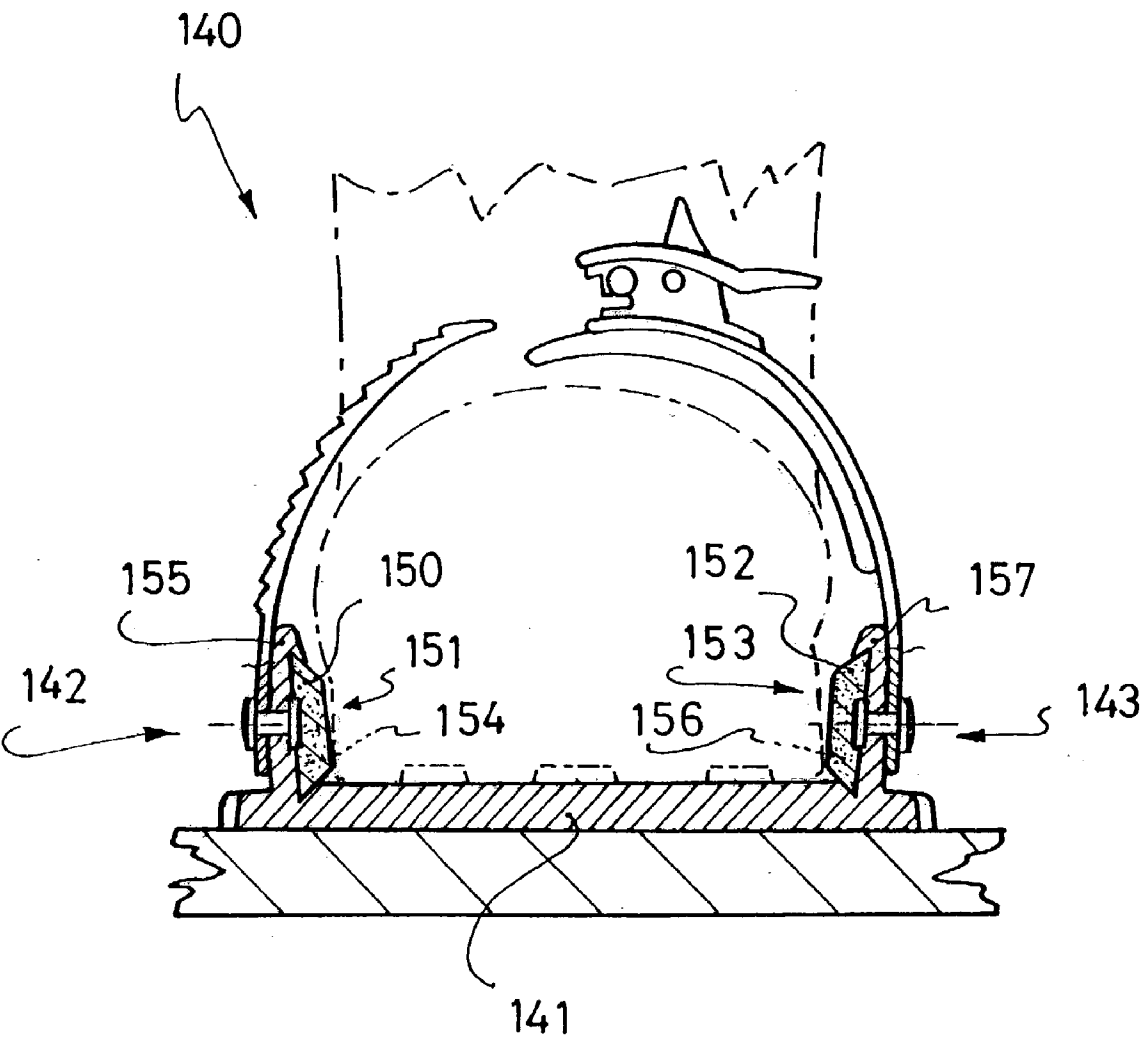


Fig. 9



DEVICE FOR RETAINING A BOOT ON A SPORTS APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based upon French Patent Application No. 02.00391, filed Jan. 9, 2002, and French Patent Application No. 02.15092, filed Nov. 25, 2002, the disclosures of both of which are hereby incorporated by reference thereto in their entireties, and the priorities of which are hereby claimed under 35 U.S.C. §119.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a device for retaining a boot on a sports apparatus, for which retention occurs by tightening at least one transverse portion of the boot.

[0004] Devices of this type can be used for snowboarding, skiing, water skiing, snowshoeing, roller skating, or the like.

[0005] 2. Description of Background and Relevant Information

[0006] A device according to prior art generally has a first and a second flange, as well as at least one strap that connects the flanges to one another.

[0007] Each flange is affixed either directly to the apparatus or to a base that is itself affixed to the apparatus. A flange retains the boot transversely.

[0008] Each strap allows tightening a transverse portion of the boot on the apparatus or on the base, between the flanges. During the tightening, the strap is deformed in order to conform to the boot upper between the flanges.

[0009] Thus, the boot is retained on the apparatus, either directly or by means of the base.

[0010] The device allows a user to send steering impulses to the apparatus.

[0011] That is the case of snowboarding, for example, a sport for which the legs in particular tilt laterally. The lateral tilting of the legs result in lateral deformations of the boot upper. As a result, portions of the upper press on the flange(s), and other portions press on the strap(s).

[0012] Since a flange is rigid and a strap is flexible, there is a discontinuity in the rigidity of the contact surface between the device and the boot upper. This surface passes abruptly from a rigid state to a flexible state at the point where the flange is extended by the strap. In other words, a low portion of the upper presses on a rigid surface defined by the flange, whereas a higher portion that is immediately adjacent presses on a flexible surface defined by the strap.

[0013] As a result, the flange tends to embed itself in the upper during a lateral tilting thereof, like a knife in a substance to be cut. This hinders the lateral deformations of the upper and can disrupt the transmission of sensory information.

[0014] Furthermore, the device must accept boots of various sizes, particularly with regards to the width and the length. In reality, each boot is only retained widthwise in the action zone of the strap.

SUMMARY OF THE INVENTION

[0015] The invention in particular encompasses a retaining device that does not hinder, or at least only slightly hinders, the lateral deformations of the upper.

[0016] Further, the invention encompasses a retaining device that improves the hold of the boot.

[0017] To this end, the invention includes a device for retaining a boot on a sports apparatus, the device having a lateral flange, a medial flange, and at least one strap that connects the lateral flange to the medial flange.

[0018] At least one of the flanges is flexible or semi-rigid. With such a structure, basically the entire contact surface, between the device and the boot upper, is continuously flexible or semi-rigid.

[0019] Also, at least one of the lateral and medial flanges is at least partially flexible or semi-rigid. With such a structure, at least one of the flanges is at least partially flexible or semi-rigid, and at least a portion, or even all of the contact surface, between the device and the boot upper, is continuously flexible or semi-rigid.

[0020] As a result, no obstacle tends to embed itself in the upper during a lateral tilting thereof.

[0021] One advantage that results from this is a certain freedom in the lateral deformations of the upper.

[0022] Another advantage is an increased reliability in the transmission of sensory information.

[0023] Yet another advantage is a better adaptation of the device to the bulk of the boot upper, and therefore a better hold of the boot.

BRIEF DESCRIPTION OF DRAWINGS

[0024] Other features and advantages of the invention will be better understood from the following description, with reference to the attached drawings showing, according to non-limiting examples, how the invention can be embodied, and in which:

[0025] **FIG. 1** is a perspective view of a retaining device according to a first example of embodiment of the invention;

[0026] **FIG. 2** is a front view of the device of **FIG. 1**;

[0027] **FIG. 3** is a rear view of the device of **FIG. 1**;

[0028] **FIG. 4** is a perspective view of a retaining device according to a second exemplary embodiment of the invention,

[0029] **FIG. 5** is a cross-section along the line V-V of **FIG. 4**, in the case where a strap of the retaining means is open;

[0030] **FIG. 6** is a cross-section similar to **FIG. 5**, in the case where the strap of the retaining means is closed;

[0031] **FIG. 7** is a perspective view of a retaining device according to a third exemplary embodiment of the invention;

[0032] **FIG. 8** is a cross-section along the line VIII-VIII of **FIG. 7**;

[0033] **FIG. 9** is a cross-section similar to **FIG. 5**, for a fourth exemplary embodiment of the invention.

DETAILED DESCRIPTION OF THE
INVENTION

[0034] Although the examples described hereinafter relate to a device for retaining a boot on a snowboard, it is to be understood that they apply to other sports, such as those previously mentioned.

[0035] The first exemplary embodiment is described with reference to FIGS. 1-3.

[0036] As seen in FIG. 1, a retaining device 1 allows the removable retention of a boot, not shown, on a board 2.

[0037] In a known manner, the retaining device 1 extends longitudinally from a rear end 3 to a front end 4. The device 1 has a lateral flange 5 and a medial flange 6 that are each used to support the boot along a substantially transverse direction of the device.

[0038] Two straps are also provided so as to removably retain the boot between the flanges 5, 6. According to one aspect of the invention that will be described further on, each of the flanges 5, 6 is flexible or semi-rigid.

[0039] A first strap 10 is located toward the rear, in the area of the instep when the foot is retained. A second strap 11 is located toward the front, in the area of the metatarsophalangeal joint when the foot is retained.

[0040] It is also within the scope of the invention that a different number of straps could be provided.

[0041] As can be seen, in FIG. 3, for example, the first strap 10 has three portions, including a fastening portion 12, a covering portion 13, and an adjusting portion 14.

[0042] With reference to FIG. 1, the fastening portion 12 has a fastening end 15 and a free end 16. The fastening end 15 is connected to the lateral flange 5 by a first lateral fastener. The latter is shown in the form of an articulation obtained, for example, by means of a screw 17.

[0043] A first connecting arrangement is provided to removably connect the covering portion 13 to the fastening portion 12. This arrangement has, for example, a ratchet tightening mechanism 20 attached to the covering portion 13 by any means, such as a screw, toward the free end 21 of this portion. The first connecting arrangement, connecting the covering portion 13 to the fastening portion 12, also has a series of teeth 22 configured on the fastening portion 12. The teeth 22 are distributed from the free end 16 up to the proximity of the articulation 17.

[0044] By acting on a lever 23 of the ratchet tightening mechanism 20, it is possible to tighten the strap 10 by bringing the free end 16 closer to the medial flange 6. By acting on a button 24 of the mechanism 20, it is possible to loosen the strap 10, or even to open it. In the latter case, the covering portion 13 and the fastening portion 12 are separated.

[0045] Other arrangements could also be provided to connect the covering portion 13 to the fastening portion 12.

[0046] Next, as can be seen in FIG. 2, the covering portion 13 is attached to the adjusting portion 14 by an arrangement shown in the form of an articulation 25.

[0047] And finally, as can be seen in FIG. 3, the adjusting portion 14 is attached to the medial flange 6 by a means shown in the form of an articulation 26.

[0048] With reference to FIG. 1, for example, the second strap 11 has a fastening portion 30 and a covering portion 31.

[0049] The fastening portion 30 is attached to the lateral flange 5 by an attaching mechanism, shown in the form of an articulation 32.

[0050] Similar to the first strap 10, an arrangement for removably connecting the fastening portion 30 to the covering portion 31 is provided. Here, too, this arrangement has a ratchet tightening mechanism 33 attached to the covering portion 31, as well as a series of teeth 34 configured on the fastening portion 30.

[0051] The mechanism 33 also has a tightening lever 35, and an untightening or release button 36.

[0052] Another structure could have been provided for the connecting arrangement. Likewise, each strap 10, 11 could also have a different structure.

[0053] According to one aspect of the invention, the covering portion 31 of the second strap 11 forms a unitary piece with the medial flange 6. The covering portion 31 is a transverse extension of the flange 6.

[0054] As a result, a fastener in the traditional sense of the word is not provided for fastening the covering portion 31 to the medial flange 6. The fastening occurs automatically through a continuity of material.

[0055] In comparison, the covering portion 31 of the first strap 10 could form a unitary piece with the medial flange 6.

[0056] According to another aspect of the invention, the medial flange 6 is flexible or semi-rigid. The lateral flange 5 is also flexible or semi-rigid. This means that each of the flanges can be manually bent in either direction in a reversible manner when it is folded over on itself.

[0057] The medial 6 and lateral 5 flanges are also substantially inextensible. They only extend a little bit when they are subject to traction forces during the steering of the board. They only compress a little bit when they are subject to compressive forces during the steering of the board.

[0058] As a result, the flanges 5, 6 are deformed transversely in correlation to the boot upper during lateral tiltings of the boot upper.

[0059] The straps 10, 11 are also relatively flexible or semi-rigid.

[0060] As a result, the retaining device 1 has a transverse flexibility that allows it to closely conform to the boot upper and to ensure a better hold. The transverse hold of the boot is also better during steering.

[0061] Each of the flanges 5, 6 is affixed to the board 2 in a reversible manner, as explained hereinafter, by means of a base 40, for example.

[0062] The lateral flange 5 is extended by a lateral extension 41, oriented toward the medial flange 6. In comparison, the medial flange 6 is extended by a medial extension 42, oriented toward the lateral flange 5.

[0063] Each of the extensions 41, 42 forms a unitary piece with its respective flange 5, 6. Each extension extends at least partially under the base and the boot when the latter is retained by the device 1. The extensions 41, 42 are preferably located both substantially in a same plane and are

maintained in a fixed position one with respect to the other on the board by means of the base 40.

[0064] To this end, the base 40 has a longitudinal lateral groove 43 and a longitudinal medial groove 44 receiving the lateral 41 and medial 42 extensions, respectively. Each of the grooves 43, 44 opens out transversely and toward the board 2 when the base is retained on the board. Nonetheless, it could have been provided for the grooves 43, 44 to open out only transversely.

[0065] The lateral 41 and medial 42 extensions are retained in their grooves 43, 44, respectively, in a removable or non-removable manner, by a retaining means, such as a glue, a set of screws or rivets, by clamping, or the like.

[0066] The base 40 is itself retained on the board by tabs extending from the core 45 of the base.

[0067] For example, a front lateral tab 50, a front medial tab 51, a rear medial tab 52 and a rear lateral tab 53 can be provided, making a total of four tabs.

[0068] As seen clearly in FIG. 2, the front lateral 50 and medial 51 tabs cross through front lateral 54 and medial 55 slits, respectively, of the lateral 5 and medial 6 flanges.

[0069] In comparison, as seen clearly in FIG. 3, the rear medial 52 and lateral 53 tabs cross through rear medial 56 and lateral 57 slits, respectively, of the medial 6 and lateral 5 flanges.

[0070] Thus, each of the tabs 50, 51, 52, 53 projects transversely with respect to the flange 5, 6.

[0071] Preferably, each of the tabs 50, 51, 52, 53 is attached to the board 2 by an attaching means, shown in the form of screws 60. Consequently, the device 1 is retained on the board 2.

[0072] Any other means for fastening the flanges 5, 6 can be provided within the scope of the invention. For example, each lateral or medial extension can be directly attached to the board by a means, such as screws, an adhesive, rivets, or the like. The extensions can be directed toward each other, or opposite each other.

[0073] As can be clearly seen in FIG. 1, the first strap 10 is substantially in the area of the rear tabs 52, 53.

[0074] With reference to FIG. 3, the articulation 17 of the fastening portion 12 is in proximity to the rear lateral tab 53. The articulation 26 of the adjusting portion 14 is in proximity to the rear medial tab 52.

[0075] In the same context, as seen clearly in FIG. 1, the second strap 11 is substantially in the area of the front tabs 50, 51.

[0076] With reference to FIG. 2, the articulation 32 of the fastening portion 30 is in proximity to the front lateral tab 50. The covering portion 31 connects with the medial flange 6 substantially in the area of the front medial tab 51.

[0077] For each of the straps 10, 11, their position with respect to the tabs 50, 51, 52, 53 allows for a more direct passage of the steering forces between the strap 10, 11 and the board 2. This results in a more precise steering of the board with a better transmission of sensory information.

[0078] In a complementary manner, as can be seen in FIG. 3, the retaining device 1 is provided with a rear support element 61 adapted to receive the user's lower leg.

[0079] The rear support element 61 is connected to the lateral 5 and medial 6 flanges by a means shown in the form of two articulations, the one lateral 62 and the other medial 63. Each articulation 62, 63 is oriented transversely with respect to the device 1, which allows folding the rear support element 61 toward the base 40 in order to store it.

[0080] An abutment mechanism can be provided, as shown in the exemplary embodiment, that limits the rearward movement of the support element 61.

[0081] As seen in FIG. 1, such an abutment mechanism has, for example, a central cable 64 associated with a lateral 65 and medial 66 tie rods. The central cable 64 surrounds the rear support element 61.

[0082] The tie rods 65, 66 are connected to the cable 64, for example, by means of lateral 70 and/or medial 71 end pieces. Each end piece 70, 71 can be provided with an adjusting mechanism for adjusting the relative positions of one end of the cable 64 and of one fixed end of the tie rod 65, 66.

[0083] Each tie rod 65, 66 is attached by any means to the lateral 5 or medial 6 flange, respectively, between the straps 10, 11.

[0084] It could be provided that the point for attaching a tie rod 65, 66 be elsewhere, for example, on the flange 5, 6, in front of the second strap 11, or on the base 40, or yet the board.

[0085] As seen in FIG. 3, a guide 72 imparts to the cable 64 a path around the rear support element 61.

[0086] When the user takes a rear support with the lower leg, the cable 64 and the tie rods 65, 66 are under tension, which limits the rearward tilting of the support element 61.

[0087] Since the articulations 62, 63 of the rear support element 61 are in proximity to the rear tabs 52, 53, and the points for fastening the tie rods 65, 66 are in proximity to the front tabs 50, 51, the sensory information transmits directly from the rear support element 61 to the board 2.

[0088] Generally speaking, the invention can be manufactured from materials and according to construction techniques known to one skilled in the art.

[0089] In particular, the flanges 5, 6 and the covering portion 31 of the second strap 11 are made from flexible or semi-rigid plastic, or from layers of fabric or leather, or from combinations of these materials.

[0090] The base 40 can be made from rigid, semi-rigid or flexible materials. However, these materials remain substantially inextensible in traction and in compression.

[0091] A second exemplary embodiment is described with reference to FIGS. 4-6.

[0092] A retaining device 80 allows the removable retention of a boot 81.

[0093] In a known manner, as can be seen in FIG. 4, the retaining device 80 has a base 82 that extends longitudinally from a rear end 83 to a front end 84.

[0094] The base **82** has an upper surface **85** provided to be under the boot sole, and a lower surface **86** provided to be above a gliding board **87**.

[0095] The base **82** is removably retained on the board **87**, by a means shown in the form of a disk **88** and screws **89**. The disk **88** allows an adjustment of the position of the retaining device **80** with respect to the board **87**.

[0096] Other means for retaining the base could be provided according to the invention.

[0097] The retaining device **80** also has a lateral flange **90** and a medial flange **91**, each of the flanges extending the base **82** upwardly. The medial flange **91** is the one close to the big toe when the foot is retained in the device. Thus, the device as shown is provided to receive the right foot.

[0098] According to the embodiment shown, each of the flanges extends substantially over the whole length of the base **82**, from the rear end **83** to the front end **84**.

[0099] As seen better in FIGS. 5 and 6, the base **82** and the flanges **90**, **91** constitute a seat, whose U-shaped cross-section allows a lateral hold of the boot.

[0100] An inner lateral surface **92** and an inner medial surface **93** of the lateral **90** and medial **91** flanges, respectively, demarcate the distance between the flanges **90**, **91**.

[0101] The lateral **90** and medial **91** flanges have an outer lateral portion **94** and an outer medial portion **95**, respectively, connected to one another toward the rear of the assembly **81** by an arch **96** that is used to position the boot heel.

[0102] The base **82**, the outer lateral **94** and medial **95** portions and the arch **96** are shown in the form of a unitary piece, made from a rigid material, for example. This can be a reinforced or non-reinforced plastic material, a metallic material, or the like.

[0103] However, it could have been provided that the outer portions **94**, **95** and/or the arch be pieces that are attached by any means, such as screws, adhesives, clips, or the like.

[0104] It could also be provided for the position of the arch with respect to the base to be adjustable.

[0105] The retaining device **80** is also provided with an arrangement for retaining the boot between the lateral flange **90** and the medial flange **91**, above the base **82**.

[0106] Such retaining arrangement is shown in the form of two straps **100**, **101** that each connect the lateral flange **90** and the medial flange **91** to one other.

[0107] Each of the straps **100**, **101** can be alternately open or closed to allow the passage or the retention of the boot. In addition, each strap **100**, **101** can be more or less taut in order to adjust the tightening of the boot.

[0108] A different number of straps could also be provided according to the invention.

[0109] Furthermore, other structures could be provided for the retaining device, such as, for example, a boot locking mechanism associated with the base. In this case, the mechanism is provided to cooperate with a mechanism for fastening the boot.

[0110] In a complementary manner, a rear support element **102** allows rear support forces to be exerted with the lower leg. This element **102** is connected to the base **82**, by means of flanges **90**, **91**, for example, by transverse articulation elements extending along axis **103**. The articulation allows a forward tilting of the rear support element, which facilitates the storing of the retaining assembly **1**.

[0111] According to the invention, at least one of the lateral **90** and medial **91** flanges is at least partially flexible or semi-rigid.

[0112] According to the second exemplary embodiment, the inner surface **92**, **93** of at least one of the lateral **90** and medial **91** flanges is demarcated by a lateral or medial pad.

[0113] In this case, a lateral pad **110** demarcates the inner lateral surface **92** of the lateral flange **90**, and a medial pad **111** demarcates the inner medial surface **93** of the medial flange **91**. This allows a good transverse wedging of the boot **81** between the flanges **90**, **91**. The lateral **110** and medial **111** pads are capable of being deformed in order to compensate for the surface or width irregularities of the boot **81**.

[0114] Each pad **110**, **111** preferably extends upwardly beyond the outer lateral portion **94** and beyond the outer medial portion **95** of the flange **90**, **91**, away from the base **82**. This ensures a certain continuity in the type of contact between the boot **81** and the retaining device **80**. The boot **81** is still in support on a flexible surface, whether the device **80** is open or closed. When a strap **100**, **101** is tightened, each lateral **110** and medial **111** pad is pressed against the boot **81**. An advantage that results therefrom is a better progressiveness in the transverse deformations of the boot **81**.

[0115] It can be provided that one of the lateral **110** and medial **111** pads be higher than the other. The one that is higher covers more the upper of the boot. The pad is clamped between the boot **81** and the strap **100**, **101**, which reduces, and even suppresses, the rubbing of the boot upper on the pad. The hold of the boot upper is improved on the side where the pad **110**, **111** is higher. It can be provided that a pad be higher on the lateral side or on the medial side, depending on the style used for steering the board **87**.

[0116] Each pad **110**, **111** must be considered either as a single lengthy element or as an assembly of several elements that can be joined or spaced apart along the flange **90**, **91**. Regardless of its structure, it fulfills shock absorbing functions.

[0117] Each pad **110**, **111** preferably has a substantially rectangular shape, which simplifies mass production. Nonetheless, any other cross-sectional shape could be used, particularly a cross-section having protuberances and/or recesses on the side adapted to contact the boot **81**.

[0118] According to the second embodiment of the invention, a central pad **112** is also provided. The latter extends substantially from the lateral flange **90** to the medial flange **91** in the transverse direction, as well as substantially from the rear end **83** to the front end **84** in the longitudinal direction of the device **80**. The central pad **112** covers all or part of the base **82** and receives the sole of the boot **81**. The central pad **112** is particularly used to absorb the supports between the boot **81** and the base **82**.

[0119] As shown, the lateral **110**, central **112** and medial **111** pads form a unitary piece, referred to as an envelope **113**. However, it could have been provided that they form two or three pieces.

[0120] The lateral **110**, central **112**, and medial **111** pads can be constructed to have a substantially constant thickness, which facilitates manufacture.

[0121] As shown better in **FIG. 4**, an opening **114** of the central pad **112** allows accessing the disk **88**. This allows adjusting the position of the device **80** with respect to the board **87** without displacing the central pad **112** or the envelope **113**.

[0122] It may be, within the scope of the invention, that an opening is not provided.

[0123] The retention of the envelope **113** to the base **82** and to the outer lateral **94** and medial **95** portions of the flanges **90, 91** can be accomplished through different means, such as by nesting, with adhesive, screws, rivets, or through a combination of these means.

[0124] The envelope **113** preferably is made from a flexible material, such as rubber, silicone, polyamide, or the like.

[0125] The envelope **113** preferably is made in the form of a single layered element, but it could include several layers of various materials.

[0126] The flexibility of the envelope **113** is relative. Flexibility means that during the steering of the board, a support of the boot upper on a flange **90, 91** causes a reversible deformation of the envelope **113**, whereas the outer portion **94, 95** of the flange **90, 91** is not substantially deformed.

[0127] The deformation of the envelope **113** allows the upper to take support on a surface having more even mechanical properties, particularly in terms of flexibility. As a result, the pressures exerted on the upper are distributed over a larger surface of the upper, which decreases the stress.

[0128] Due to this, the wear of the boot upper is very low, or nonexistent.

[0129] What is valid for the envelope **113** in terms of retention and specific properties is also valid for a lateral **110**, medial **111**, or central **112** pad considered by itself.

[0130] A third exemplary embodiment of the invention is shown in **FIGS. 7 and 8**.

[0131] For reasons of convenience, only the differences with respect to the first example are shown.

[0132] According to the third example, and as known, a retaining device **120** has a base **121** that extends longitudinally between a rear end **122** and a front end **123**, and transversely between a lateral flange **124** and a medial flange **125**.

[0133] According to the invention, a lateral pad **130** demarcates an inner lateral surface **131** of the lateral flange **124**, and a medial pad **132** demarcates an inner medial surface **133** of the medial flange **125**.

[0134] A central pad **134** forms a unitary piece with the lateral **130** and medial **132** pads.

[0135] The particularities of the third exemplary of embodiment of the invention are the following.

[0136] At least one of the lateral **130** and medial **132** pads has a variable height "h," the height h being measured perpendicularly to the base **121**, between the central pad **134** and the top of the pad **130, 132**. In this case, the height h is greater toward the rear end **122** than toward the front end **123**. This allows a better transverse shock absorption perpendicular to the lower leg.

[0137] The central pad **134** has a variable thickness. At least one of its rear **135** and front **136** ends is thicker than its central portion **137**. In this case, the two rear **135** and front **136** ends project away from the base **121**, with respect to the central portion **137**.

[0138] It could have been provided that only one end **135, 136** project. In any case, a projection of the central pad **134** distances one end of the retained boot with respect to the board. On the one hand, this keeps the boot from rubbing in the snow. On the other hand, it allows amplifying the steering impulses since the transmission of impulses is more direct.

[0139] A fourth exemplary embodiment of the invention is shown in **FIG. 9**.

[0140] Here again, only the differences with respect to the other examples are shown.

[0141] According to the fourth example, and as known, a retaining device **140** has a base **141** that extends transversely between a lateral flange **142** and a medial flange **143**.

[0142] According to the invention, a lateral pad **150** demarcates at least partially one inner lateral surface **151** of the lateral flange **142**, and a medial pad **152** demarcates at least partially one inner medial surface **153** of the medial flange **143**.

[0143] Each pad **150, 152** is integrated into the lateral **142** or medial **143** flange. This means that, for example, each pad **150, 152** is housed, at least partially, in a lateral recess **154** of an outer lateral portion **155** of the lateral flange **142**, or in a medial recess **156** of an outer medial portion **157** of the medial flange **143**.

[0144] Any other manner of integrating the pad **150, 152** into the flange **142, 143** could also be provided within the scope of the invention.

[0145] In any case, a central pad can be provided between the flanges **142, 143**; the central pad may or may not form a unitary piece with the lateral **150** and medial **152** pads.

[0146] In any case, the invention is made from materials and according to techniques of embodiment that are known to one skilled in the art.

[0147] The invention is not limited to the particular examples described hereinabove, and it includes all of the technical equivalents that come within the scope of the following claims.

[0148] In particular, for the first example, the lateral **41** and medial **42** extensions of the flanges **5, 6** could be joined to form a unitary piece.

[0149] The first strap **10** could have, as does the second strap **11**, a portion that forms a unitary piece with the flange.

[0150] Conversely, the second strap 11 could have a covering portion connected to the flange by any means, such as an articulation.

[0151] The strap fastening portions could be connected to the medial flange 6, and the covering or adjusting portions could be connected to the lateral flange 5.

[0152] The retaining device 1 could also be cut transversely between the straps 10, 11. In this case, it would be formed of a front portion and of a rear portion. The front portion would have the front tabs, the front strap, two half-flanges, and possibly a front half-base, as well as the points for fastening the abutment means of the rear support element. The rear portion would have the rear tabs, the rear strap, two other half-flanges, and possibly a rear half-base, as well as the points for attaching the rear support element.

[0153] The flanges 5, 6 and/or the extensions 41, 42 can be covered at least partially with one or several layers of textile material, for example, by gluing, stitching, or riveting.

[0154] For the other examples of retaining devices, one can always provide a medial pad or a lateral pad or a medial pad and a lateral pad.

[0155] It is possible for a retaining device not to have a base. In this case, each flange is attached directly to the board.

[0156] For each retaining device of the examples described, at least one of the lateral and medial flanges is made from several materials. Nevertheless, one can provide that at least one of the lateral and medial flanges be made from a single material.

What is claimed is:

1. A device for retaining a boot on a sports apparatus, the device comprising:

a lateral flange, a medial flange and at least one strap connecting the lateral flange to the medial flange, at least one of the flanges being flexible or semi-rigid.

2. A retaining device according to claim 1, wherein both the lateral flange and the medial flange are flexible or semi-rigid.

3. A retaining device according to claim 1, wherein a base is provided to attach each of the flanges to the apparatus.

4. A retaining device according to claim 3, wherein each of the flanges is extended by an extension that is received in a longitudinal groove of the base.

5. A retaining device according to claim 4, wherein each groove opens out transversely and toward the apparatus when the base is retained on the apparatus.

6. A retaining device according to claim 4, wherein each extension is retained in the groove by a retaining mechanism.

7. A retaining device according to claim 3, wherein retaining tabs originate from the core of the base, the straps being substantially in the area of the tabs.

8. A retaining device according to claim 1, wherein each flange is extended by an extension, the extensions joining each other to form a unitary piece.

9. A retaining device according to claim 1, further comprising an arrangement attaching each flange directly on the apparatus.

10. A retaining device according to claim 1, wherein each of the flanges is substantially inextensible.

11. A retaining device according to claim 1, wherein each of the flanges and/or extension is covered at least partially with one or several layers of textile material.

12. A retaining device according to claim 1, wherein at least one of the straps has a covering portion that forms a unitary piece with a flange.

13. A retaining device according to claim 1, wherein a strap has a covering portion attached to an adjusting portion, the adjusting portion being attached to a flange.

14. A retaining device according to claim 1, wherein at least one strap has an arrangement for removably connecting the covering portion to a fastening portion, the fastening portion being attached to one of the flanges, the covering portion being attached to the other of the flanges.

15. A retaining device according to claim 1, further comprising a rear support element and an abutment mechanism limiting rearward movement of the support element.

16. A retaining device for retaining a boot on a sports apparatus, the device comprising:

a lateral flange, a medial flange, and at least one strap connecting the lateral flange to the medial flange;

wherein at least one of the lateral and medial flanges is at least partially flexible or semi-rigid.

17. A retaining device according to claim 16, wherein at least one of the lateral and medial flanges is made from a single material.

18. A retaining device according to claim 16, wherein at least one of the lateral and medial flanges is made from several materials.

19. A retaining device according to claim 16, wherein an inner surface of at least one of the lateral and medial flanges is demarcated by a lateral or medial pad.

20. A retaining device according to claim 19, wherein a lateral pad demarcates the inner lateral surface of the lateral flange, and wherein a medial pad demarcates the inner medial surface of the medial flange.

21. A retaining device according to claim 19, wherein at least one lateral pad and/or one medial pad extends upwardly beyond an outer lateral and/or medial portion of the flange.

22. A retaining device according to claim 19, wherein one of the lateral and medial pads is higher than the other.

23. A retaining device according to claim 19, wherein at least one of the lateral and medial pads has a variable height.

24. A retaining device according to claim 19, wherein the height of the lateral and/or medial pad is greater toward the rear.

25. A retaining device according to claim 19, wherein at least one of the lateral and/or medial pads has a substantially constant thickness.

26. A retaining device according to claim 16, further comprising a base, the lateral and medial flanges extending upwardly from the base.

27. A retaining device according to claim 16, further comprising a central pad at least partially covering the base.

28. A retaining device according to claim 27, wherein the lateral, central, and medial pads form a unitary piece.

29. A retaining device according to claim 27, wherein the central pad has an opening allowing accessing a disk for retaining the base.

30. A retaining device according to claim 27, wherein at least one of the rear and front ends of the central pad is

thicker than a central portion, the rear and/or front end projecting away from the base.

31. A retaining device according to claim 16, wherein the lateral and medial flanges are connected to one another by an arch.

32. A retaining device according to claim 19, wherein at least one of the lateral and medial pads is integrated with the lateral or medial flange.

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