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(54) **BOOT WITH AT LEAST TWO LACING ZONES**

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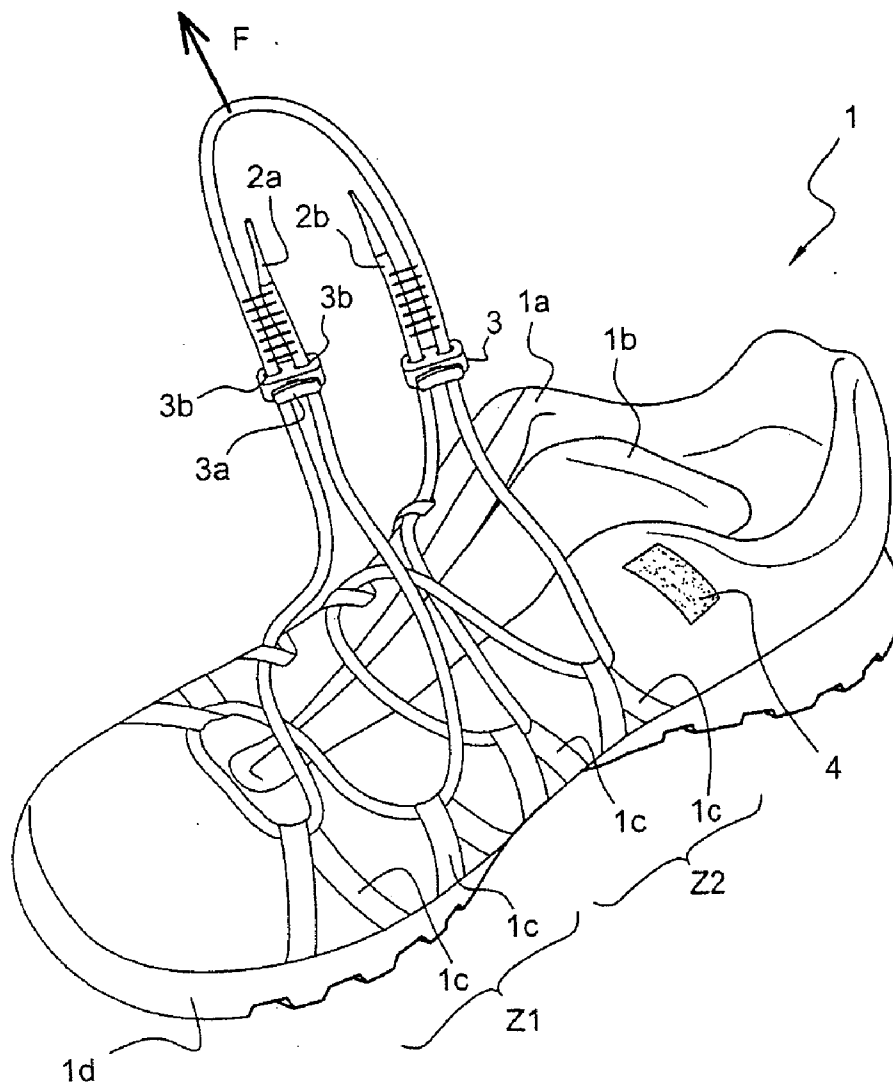
(57) **ABSTRACT**

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The boot including a lacing device, is noteworthy in that the boot (1) comprises at least two independent successive zones of lacing (Z1-Z2), allowing a differential adjustment and tightening of the lacing chosen and adapted by the user himself, whatever the lacing means may be.

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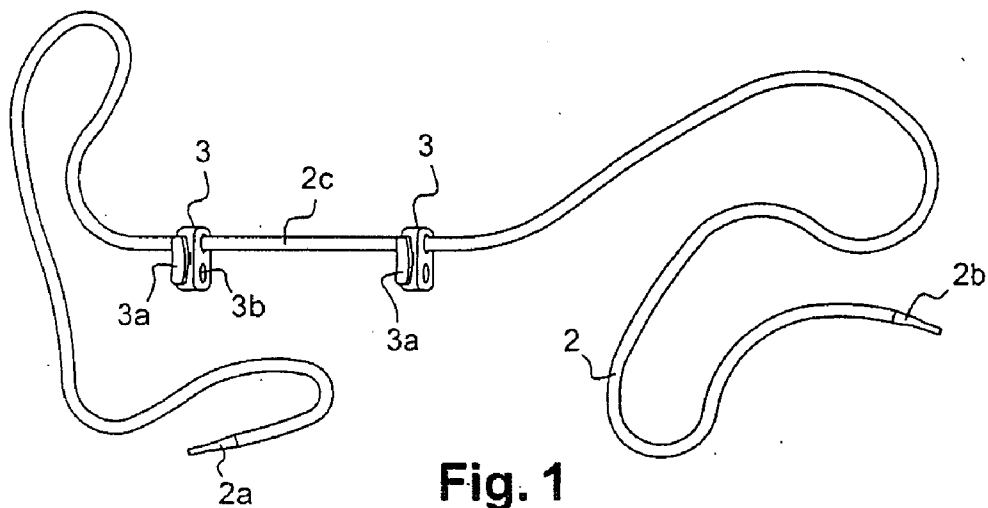


Fig. 1

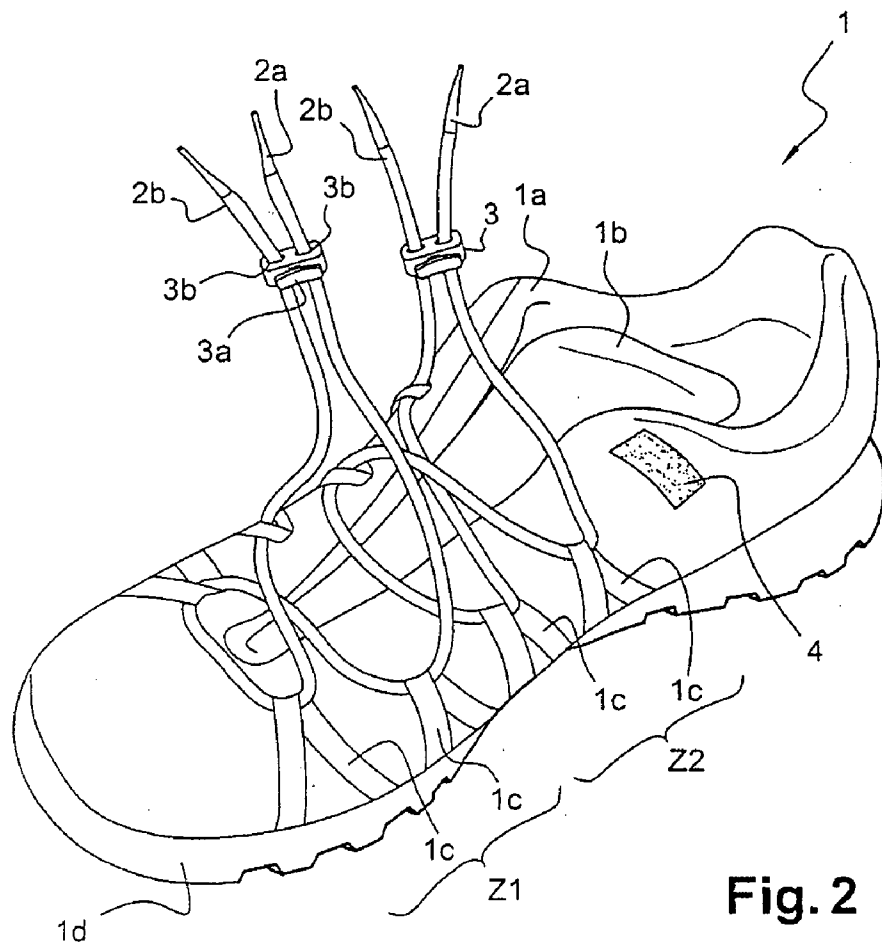


Fig. 2

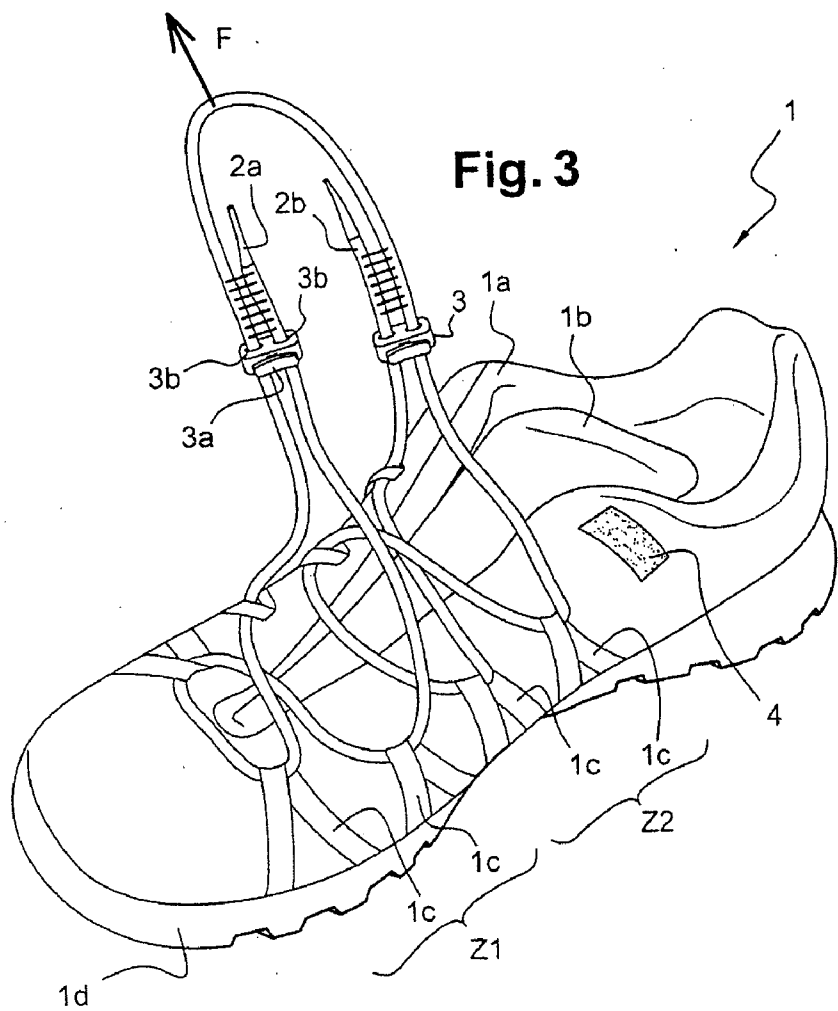


Fig. 3

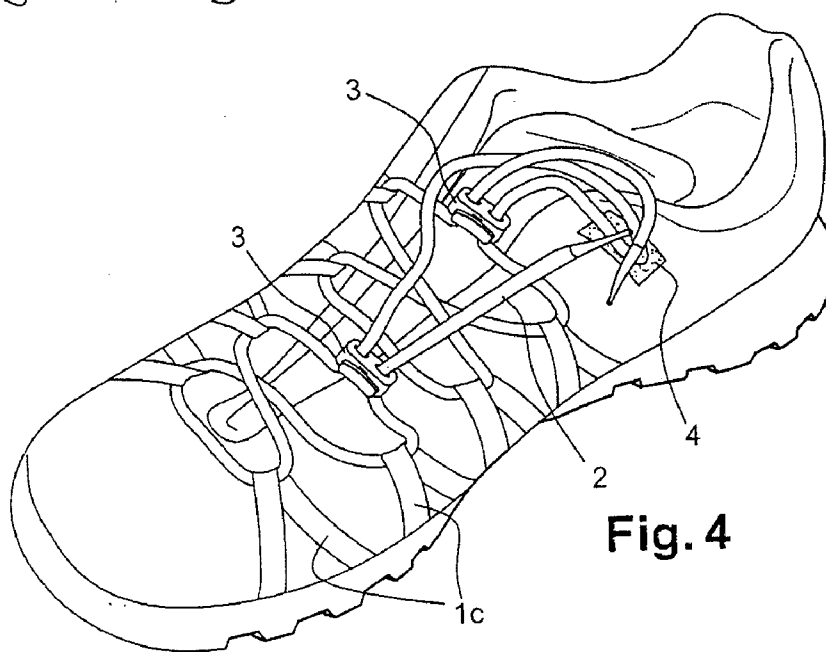


Fig. 4

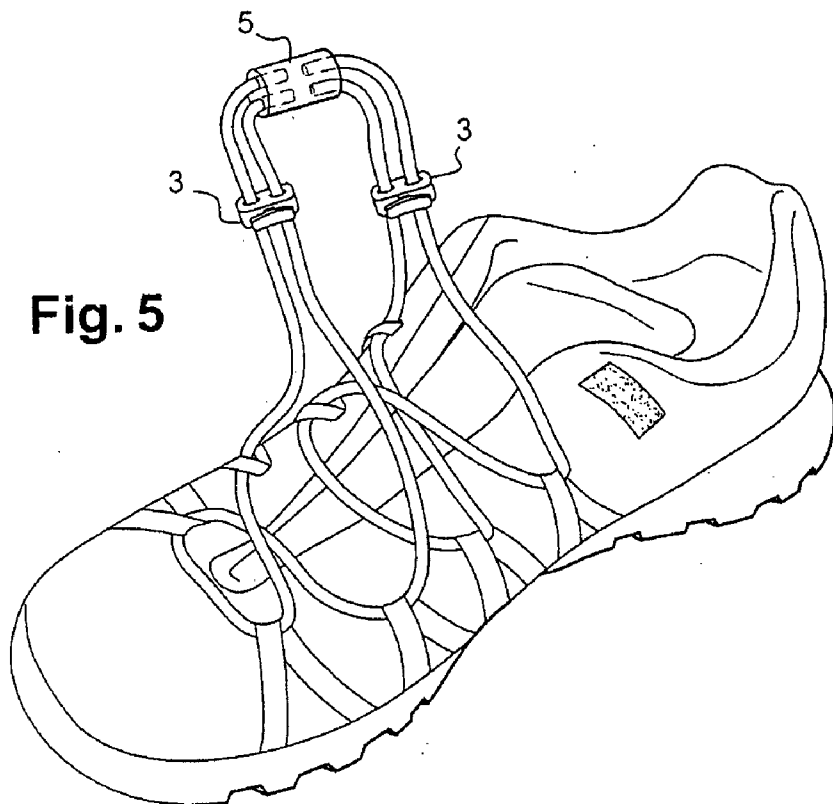


Fig. 5

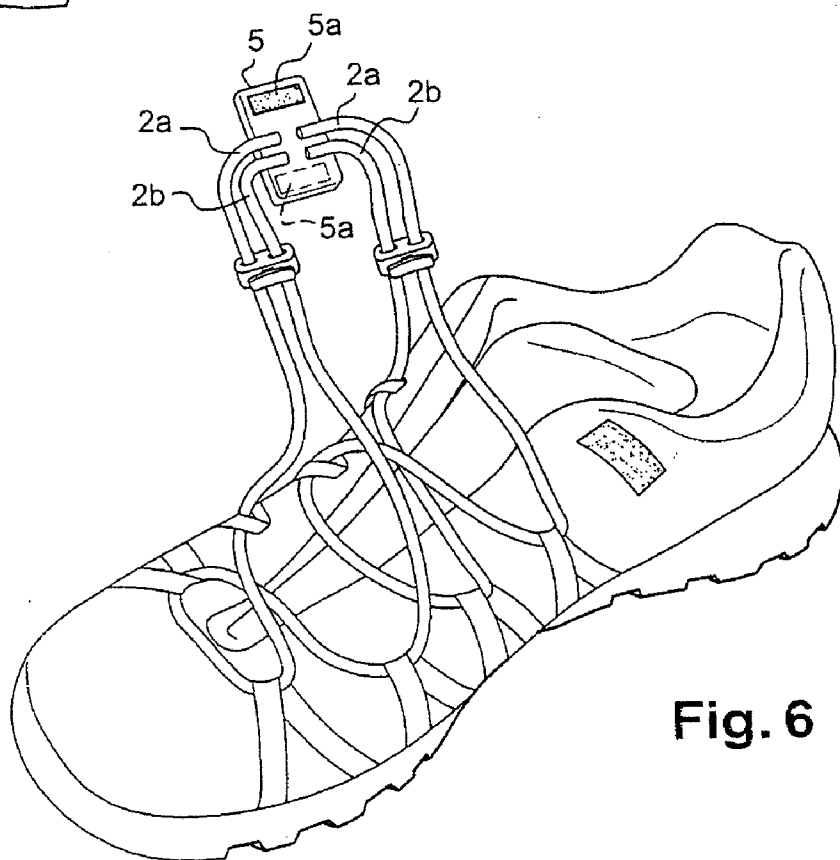


Fig. 6

BOOT WITH AT LEAST TWO LACING ZONES

[0001] The invention relates to the technical sector of footwear and, more specifically to the lacing of footwear.

[0002] The majority of footwear for wearing in town, for sports, for hiking, or for climbing is provided with lacing zones using hooks or eyelets arranged on facings located on either side of the opening zone of the footwear in order to facilitate insertion of the user's foot.

[0003] The lace-fastening zone thus comprises, depending on the intended use of the footwear, several rows of pairs of hooks or eyelets that hold the foot in the footwear. Adjustment of tightness remains largely uniform and unaffected, and depends on the tension force exerted on the two strands of the lace.

[0004] Furthermore, and by way of example, when boots are used for sports hiking, the athlete's feet are very highly stressed, firstly on account of the constraints of the terrain, with lateral tilting effects, which effects may be prejudicial, and secondly by the foot's sliding in the boot itself.

[0005] To enhance boot comfort, certain manufacturers have moved the zones receiving the eyelets and/or hooks or the like onto the lateral sides of the boot's upper, substantially at mid-height, thereby enlarging the lacing zone.

[0006] The feet are able more easily to slide sideways inside the boot and provide greater comfort.

[0007] However, lacing remains the same in terms of the boot itself, such that the tightening pressure remains the same over the entire length of the boot throughout the period of use. Even assuming that lacing starts off by the pressure being different in different parts, in practice, it has been observed that, over a period of use, the pressure equalizes over the entire tightening zone.

[0008] The applicant sought to obviate these drawbacks and to improve foot holding and comfort for the user whenever force is exerted by enabling tightening to be adapted to the particular area of the foot, the instep, ankle and metatarsus in particular.

[0009] The applicant aimed to propose a solution that is rapid and simple to implement with a view to modulating the tightening pressure as a function of the various parts of the foot, wanting this pressure to remain constant over a specific tightening zone throughout the duration of the particular activity.

[0010] A further aim sought according to the invention was to enlarge the tightening zone for the foot in order to increase foot holding and comfort by allowing the boot to adapt to all types of terrain covered by the athlete and general user.

[0011] These and other objects will become clearly apparent from the remainder of the description.

[0012] According to a first characteristic of the invention, the boot is noteworthy in that it comprises at least two different, successive lacing zones allowing differentiated, separate tightening and adjustment of the lacing, chosen and adapted by the user himself, irrespective of the lacing means and in that, for each lacing zone, an attachment and rapid-tightening means is associated on the lace or end part of the lace, and in that, between the attachment and rapid-tighten-

ing means, the lacing zones are extended to form an intermediate linking and pulling part allowing, by means of a single action of gripping said intermediate parts, differentiated tightening and adjustment of the boot in the lacing zones concerned by the positioning of each attachment means.

[0013] According to another characteristic, the boot is noteworthy in that it comprises at least two differentiated lacing zones but only one lace, and in that said lace receives at least two attachment and rapid-tightening means in a number that corresponds to the number of lacing zones, allowing, by means of a single action of grasping the lace in the zone between said attachment means, differentiated tightening and adjustment of the boot in the lacing zones concerned, by the positioning of each attachment means.

[0014] These and yet other characteristics will become clearly apparent from the remainder of the description.

[0015] In order to establish the subject of the invention illustrated in a non-limiting manner in the figures of the drawings in which:

[0016] **FIG. 1** is a view of a single lace according to the invention provided with rapid attachment means suitable for use on the boot;

[0017] **FIG. 2** is a view of a boot provided with two laces according to the invention. The boot is shown before tightening;

[0018] **FIG. 3** is a view of a boot provided with a lace according to the invention. The boot is shown before tightening;

[0019] **FIG. 4** is a view of the boot according to **FIG. 2** after differentiated tightening;

[0020] **FIG. 5** is a view of a boot provided with two laces with a rapid tightening means arranged in order to allow, by a single means, adjustment and tightening of the lacing zones;

[0021] **FIG. 6** is a partial view of the single means shown in **FIG. 5**.

[0022] In order to render the subject of the invention more concrete, it is now described in a non-limiting manner, illustrated in the figures of the drawings.

[0023] The invention applies to all types of footwear. For the purposes of understanding the invention, the illustration shows a sports boot for hiking, climbing or orienteering, which is referenced overall by (1). On its top part, conventionally, it has an opening (1a) with a tongue (1b) and, around these, a lacing zone that may be based on hooks, eyelets or other means arranged in several successive rows in the facing part around said opening. There may be any number of pairs of means (1c) for passage of the laces, such as hooks or eyelets, and this number varies in accordance with the intended use for the boot. For the purposes of understanding the invention, four pairs of lace-passage means are shown.

[0024] According to a first arrangement of the invention, the latter aims to introduce, by means of the lacing means (2), at least two successive, independent lacing zones, that are equal or different in size, to allow differentiation of the tightening force and the latter's adjustment depending on the parts of the foot involved and in accordance with the user's

desired level of comfort. Thus, in the implementation illustrated, two lacing zones (Z1, Z2) have been defined, each with two pairs of lace-passage means. Lacing may take place in any appropriate manner and, for example, conventionally.

[0025] FIG. 2 shows an implementation of the invention based on the use of two laces, while FIG. 3 illustrates optimized implementation of the invention, with a single lace carrying out the desired function of lacing with differentiated tightening force.

[0026] If the boot comprises two lacing zones with two laces, in addition to traditional lacing, a rapid attachment means (3) is associated with each lace. If the boot comprises only one lace, the latter, as shown in FIG. 1, receives two rapid attachment means.

[0027] In practice, the rapid attachment means is known per se. By way of example, one of them has been shown. It comprises a fixed body defining an inner volume in which a push-button (3a) moves against an elastic return means. The body and the push-button are arranged in order to remain linked together. The body and the push-button have, respectively, openings (3b), which, in a certain position of the push-button relative to the body, and against the elastic return means, leave a passage for threading through the strands of the lace or laces. Other embodiments of rapid attachment means fulfilling the same function may be used.

[0028] Thus, in the implementation of a boot with two lacing zones and two laces, each receiving a rapid attachment means, it suffices to move each attachment means in the manner of a slide in order to close the boot and achieve the desired tightening. It is thus possible to differentiate the tightening force of the two means and to vary the tightening pressure at the desired points of the boot independently. When the attachment and rapid-tightening means (3) are positioned, the free-end strands (2a-2b) of each lace may be left free or be fastened to a fastening strip (4) in the form of a hook/loop fastening tab or the like arranged on one of the sides of the boot, or be placed in a small pocket arranged close to the tongue (1b). In a variant embodiment, the two end strands (2a-2b) may be secured together by stitching, welding or the like so as to exert an even, regular pulling force on the two strands.

[0029] In an optimized implementation shown in FIGS. 3 and 5-6, according to two variant embodiments, the differentiated tightening and adjustment action for the boot in the lacing zones concerned takes place in a unique manner by means of the gripping of an intermediate linking part consisting of at least one or more lace parts extending beyond the lacing zones.

[0030] The optimized implementation of the invention in a first embodiment illustrated in FIG. 3 relates to the use of a single lace (2) receiving the two rapid attachment means (3) in the hypothetical case of two lacing zones. In this case, the two means are advantageously arranged in the median part of the lace, being separated from one another by a lace-strand part (2c) capable of forming a gripping and pulling means—arrow F—for carrying the pair of boots, irrespective of the distance between said attachment and tightening means. In this implementation, threading-through of the lace in each zone takes place for each free end of the lace, passing through each lace-passage means—hook, eyelet or the like—then, after it has all been threaded right

through, the remaining free end (2a-2b) of the lace is in turn threaded into the attachment and tightening means (3). The operator can then, without difficulty, carry out the operation of appropriate, differentiated tightening and adjustment to identical or different degrees. The gripping part (2c) may then be held on the side, on the catching zone (4) provided for this purpose. The strands (2a-2b) are advantageously secured together by stitching, welding or the like, and are linked to the gripping part (2c)

[0031] In the second optimized implementation shown in FIGS. 5 and 6, the free ends (2a-2b) of each lace located beyond the attachment and tightening means (3) are inserted, positioned and held in a long sleeve (5) forming a gripping means. This sleeve may, as shown in FIG. 5, be formed as a component that can be rolled up on itself, with linking and closure hook/loop fastening means (5a). Thus, the free ends (2a-2b) of the laces are held tightly in the sleeve. This can then be grasped by the user in an identical manner to the single action carried out in the implementation described according to FIG. 3.

[0032] Given the subject of the invention and the objects sought at the beginning—improved foot holding and comfort for the user as a function of the stresses exerted—a particular solution of the lace-passage means is illustrated in FIGS. 2 and 3. Said lace-passage means (1c) are produced from a plurality of loops in the form of strands of textile or other material, the ends of which are fastened and secured at the sole (1d) of the boot. This link is made by stitching, adhesive bonding or the like. Each loop thus has a V shape, the base of which serves to change the direction of the lace. Each loop may have a certain deformation elasticity in order to be placed under tension, depending on the tightening force. It may be envisaged that one or more loops are thus arranged on the side, in the rear zone of the foot.

[0033] In any event, this implementation is highly practical and enables the user's foot to adapt its position within the body of the boot in accordance with external stresses and constraints. Gripping of the foot is perfectly maintained. The foot is better held in the boot and the risk of injury is reduced.

[0034] By means of a very rapid movement, each user may thus adjust the position of the adjustment means (3) and, during walking, hiking, orienteering or the like, adapt the tightening effects of the parts of the boot in accordance with a particular situation at a particular time.

[0035] The advantages are clearly apparent from the invention. The simplicity of implementation of the invention and its ability to be adapted to any existing boot, irrespective of the lace-passage means, is highlighted.

[0036] Furthermore, and by implementing the invention, at any time during use the respective pressures exerted in the lacing zones remain the same.

[0037] Without departing from the scope of the invention, the lacing means may be used to receive a plurality of linking loops uniformly arranged around the boot. Any combination of loop positions is possible on the boot in order to guarantee optimum foot holding and comfort.

1. A boot, which comprises at least two different, successive lacing zones allowing differentiated, separate tightening and adjustment of the lacing, chosen and adapted by the user

himself, irrespective of the lacing means, wherein, for each lacing zone, an attachment and rapid-tightening means is associated on the lace or end part of the lace, and wherein, between the attachment and rapid-tightening means, the lacing zones are extended to form an intermediate linking and pulling part allowing, by means of a single action of gripping said intermediate parts, differentiated tightening and adjustment of the boot in the lacing zones concerned by the positioning of each attachment means.

2. The boot, including a lacing device, which comprises at least two differentiated lacing zones (Z1-Z2) but only one lace (2), wherein said lace receives at least two attachment (3) and rapid-tightening means in a number that corresponds to the number of lacing zones, allowing, by means of a single action of grasping the lace in the zone (2c) between said attachment means, differentiated tightening and adjustment of the boot in the lacing zones concerned, for positioning each attachment means.

3. The boot as claimed in claim 1, wherein the end strands (2a-2b) are adjacent at the exit from the attachment means to the gripping and pulling part (2c).

4. The boot as claimed in claim 1, wherein the free ends (2a-2b) of each lace beyond the attachment and tightening means (3) are inserted, positioned and held in a long sleeve (5) forming a gripping means.

5. The boot as claimed in claim 4, wherein the sleeve consists of a component that can be rolled up on itself, with linking and closure hook/loop fastening means.

6. The boot as claimed in claim 1, wherein the end strands (2a-2b) of the laces are secured together by means of stitching, welding and the like.

7. The boot as claimed in claim 1, wherein the end strands (2a-2b) extending beyond the attachment means are secured by welding, stitching and the like to the gripping part (2c).

8. The boot as claimed in claim 1, which comprises a catching zone (4) arranged on the side of the boot, close to the tongue (1b), for receiving the parts of the lace that are left free.

9. The boot as claimed in claim 1, which comprises a pocket arranged on the side of the boot or close to the tongue (1b) for receiving and storing the parts of the lace that are left free.

10. The boot as claimed in claim 1, wherein the means (1c) for passage of the laces (2) are formed from a plurality of loops in the form of V-shaped strands, the free ends of which are secured to the sole of the boot and the base of the V serving to change the direction of the lace.

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