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(54) Wedge particularly for sports shoes

(57) A wedge (1) for sports shoes having a base from which studs (13,14) protrude in a lower region at the toe and at the heel and can be arranged within complementarily shaped seats formed in the sole of the shoe. At least one first tab (17,18) protrudes upward along almost the entire length of the perimetric edge of the base and has at least one pre-scored region (19a, 19b) and at least one first opening (20) at the metatarsus of the foot.

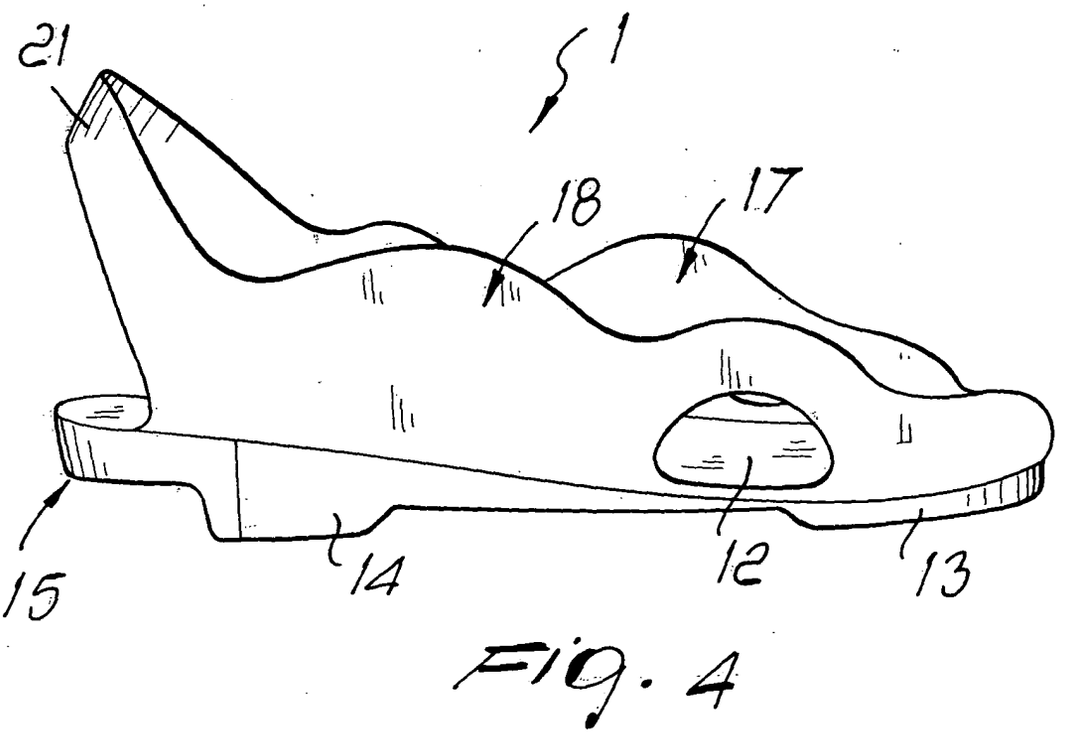

Fig. 4

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Description

[0001] The present invention relates to a wedge particularly for sports shoes.

[0002] Currently, particularly as regards the field of ski boots, it is known to provide plantar inserts in order to improve the adaptability of shoes to the specific anatomical shape of the foot of the user.

[0003] IT-0240619A1 discloses a supporting plantar insert for ski boots that is constituted by a substantially flat base from which respective studs protrude in a lower region, approximately at the heel and toe regions, and can be positioned at the sole of the shell.

[0004] A first pair of mutually facing wings, located at the heel region, and a second pair of mutually facing wings, having a substantially rectangular plan shape, protrude from the lateral edges of the base at the heel and metatarsal regions.

[0005] A first drawback that can be observed in conventional plantar inserts of the above type is that they do not allow to achieve, inside the shoe, a fully stable and comfortable position for the user's foot, since they form lateral containment and/or abutment surfaces only at distinct and separate regions of the heel and of the metatarsus.

[0006] This leads to a further drawback, linked to the fact that the distribution of the field of pressures that act on the sides of the foot can have excess variations caused by the onset of possible lateral compression of the foot at the regions thereof that are affected by the first and second pairs of wings and to the onset, at the central region of the sides of the foot, of possible free volumes formed between the foot and the first and second pairs of wings.

[0007] Another drawback that can be observed in such conventional plantar inserts is that the wings have a limited region of connection to the base and are therefore susceptible to breaking or in any case to possible distortions and/or deformations, such as for example splaying due to possible lateral flexing of the foot performed by the user while skiing.

[0008] Another drawback of such conventional plantar inserts is that the foot of the user can be subjected to rashes or irritations, because its central region located at the interspace formed between the first and second pairs of wings is free to protrude externally with respect to their end edges, which by consequently forming discontinuities or vertical edges tend to produce a pinching effect on the foot.

[0009] A further drawback is that such conventional plantar inserts, in addition to not allowing good lateral retention of the foot, leave the heel free to move in a vertical direction.

[0010] A further drawback is that such conventional plantar inserts can also produce the onset of painful symptoms caused for example by the compression applied by the second pair of wings to the small bones that are present at the metatarsus of the foot.

[0011] A further drawback is that in any case such conventional plantar inserts have a standardized shape.

[0012] The aim of the present invention is to solve the above-mentioned technical problems and eliminate the cited drawbacks, by providing a wedge that allows to achieve stable positioning of the foot inside the shoe, consequently providing thereon optimum lateral retention while ensuring a high degree of comfort.

[0013] An object of the present invention is to provide a wedge that can also be used as a size reduction device, accordingly allowing, for an equal shoe size, to have a shoe that provides better performance or comfort.

[0014] A further object is to provide a wedge that can be customized or adapted according to the specific anatomical shape of the foot of the user.

[0015] A further object is to provide a wedge that is resistant to any mechanical stresses transmitted by the foot and therefore is not susceptible to deterioration or breakage.

[0016] A further object is to provide a wedge that allows to achieve optimum distribution of the field of pressures at most of the lateral extension of the foot, including the lateral extension of the plantar arch.

[0017] A further object is to provide a wedge that associates with the preceding characteristics that of having low costs.

[0018] This aim and these and other objects that will become better apparent hereinafter are achieved by a wedge particularly for sports shoes, comprising a base from which studs protrude in a lower region at the toe and at the heel, the studs being arrangeable within complementarily shaped seats formed in the sole of the shoe, characterized in that at least one first tab protrudes upward along almost the entire length of the perimetric edge of the base and has at least one pre-scored region and at least one first opening at the metatarsus of the foot.

[0019] Further characteristics and advantages of the present invention will become better apparent from the following detailed description, which must be considered together with the accompanying drawings, which illustrate by way of non-limiting example a preferred but not exclusive embodiment and wherein:

Figure 1 is a partially sectional side view of a boot inside which a wedge is associated;

Figure 2 is a side view of the boot of Figure 1, from which the quarter has been removed;

Figure 3 is a side view of the boot of Figure 2, from which the quarter and the shell have been removed;

Figure 4 is a side view of the wedge according to the invention;

Figure 5 is a perspective view of the wedge according to the invention;

Figure 6 is a side view of the wedge on which a prescored region, suitable to guide the user in cutting part of the wedge, is provided;

Figure 7 is a side view of the wedge on which pre-scored regions are provided.

[0020] With reference to the figures, and bearing in mind that they exemplify a particular embodiment and are in variable scale and that in the figures individual reference numerals correspond to identical or equivalent parts, the reference numeral 1 designates a wedge, particularly usable in a sports shoe, such as a ski boot, which is generally designated by the reference numeral 2.

[0021] In the example shown in Figures 1, 2 and 3, the ski boot 2 comprises a shell 3, which is constituted by a sole 4, from the perimetric edge of which a raised rim 5 protrudes upward at least along part of the height of the foot.

[0022] The boot 2 further comprises a quarter 6 that is pivoted transversely to the shell 3 approximately at the malleolar region 7, for example by rotary connection to a pair of studs, designated by the reference numeral 8.

[0023] Suitable levers and/or fastening straps are associated with the quarter 6 and are generally designated by the reference numeral 9.

[0024] The shell 3 and the quarter 6 constitute a containment structure for a soft innerboot 10 adapted to surround the foot and at least part of the leg of the user.

[0025] A preferably semirigid counter 11 can be optionally associated transversely with respect to the soft innerboot 10 starting from the region above the malleolar region 7 and facilitates the mating of the soft innerboot 10 with the internal surface of the quarter 6.

[0026] The application of the wedge 1 to the inside of the shell 3 of the ski boot 2 is performed so as to interpose it between the shell 3 and the facing outer surfaces of the soft innerboot 10.

[0027] The wedge 1 comprises a base 12 that is substantially flat and has an anatomical shape in plan view that is substantially similar to the shape of the undersurface of the sole of the foot of the user.

[0028] A first stud 13 and a second stud 14 protrude below the base 12, approximately at the toe and at the heel respectively, and are positioned within complementarily shaped seats formed at the lower surface of the sole 4.

[0029] In this embodiment, the second stud 14 protrudes below the base 12, preferably at a preset distance from the rear end 15 thereof, and is shaped approximately like a truncated pyramid provided with a polygonal plan shape, preferably a square or rectangular plan shape, in which the smaller end face is directed downward.

[0030] The first stud 13 protrudes below the base 12, approximately at its front end, and is approximately shaped like a parallelepiped or truncated pyramid that is narrower than the second stud, so that when the studs are positioned within their respective complementarily shaped seats the upper surface 16 of the base 12 of the wedge 1 lies on a plane that is slightly inclined downward from the heel toward the toe.

[0031] A first tab 17 and a second tab 18 protrude upward along almost the entire length of the perimetric rim 30 of the base 12.

[0032] In greater detail, the first tab 17 and the second tab 18 protrude approximately vertically so as to form a substantially U-shaped transverse cross-section, and have an upper perimetric edge 31 that is provided with a substantially undulated profile that produces a variable height for the first tab 17 and the second tab 18.

[0033] The first tab 17 and the second tab 18 each have at least one pre-scored region.

[0034] In the illustrated embodiment, two pre-scored regions 19a and 19b are provided for allowing, by removing them partially or completely, to customize the size reduction for the shoe, so as to improve its performance or comfort for the foot of the user for an equal shoe size.

[0035] Each of the first tab 17 and second tab 18 have at least one opening 20 that is formed at the metatarsal region of the foot so as to form a hollow for decompression of the smaller bones of the foot.

[0036] The first tab 17 and the second tab 18 are connected one another at the rear, proximate to the upper perimetric edge 31, by a transverse wing 21, which is substantially arc-like and is arranged above the heel, so as to surround it in an upper region and also lock its position.

[0037] In this manner, the transverse wing 21, together with the underlying portion of the base 12 and the regions for connection to the first tab 17 and the second tab 18, forms a closed annular shape, delimiting a second opening 22.

[0038] Once the wedge 1 has been associated with the sole 4 it is therefore possible to ensure that when the lower surface of the soft innerboot 10 rests on the upper surface 16 of the base 12 and the first tab 17 and the second tab 18 are adjacent to the facing portions of the outer surface 23 of the innerboot 10, part of the heel region thereof is positioned through the second opening 22, with consequent connection to the transverse wing 21.

[0039] It has thus been found that the intended aim and objects have been achieved, a wedge having been provided which, by having a first tab and a second tab that run along almost the entire length of the respective sides of the foot, allows the foot to be positioned stably within the shoe, accordingly providing thereon optimum lateral containment while ensuring a high degree of comfort.

[0040] Because of the configuration of the first and second tabs and of the presence thereon of at least one pre-scored region, the wedge thus provided can be used advantageously as a size reduction device and therefore allows to obtain a more comfortable or better performing shoe for an equal size: it is sufficient for the user to have two wedges that are shaped differently in the

first and second tabs to achieve one or the other of these characteristics, simply by extracting them and repositioning them inside the shell.

[0041] Moreover, the openings provided on the first and second tabs at the metatarsal region, provide optimum lateral retention of the foot and prevent possible painful conditions caused, for example, by the compression of the small bones of the foot.

[0042] The wraparound wing of the wedge, in addition to ensuring lateral retention of the foot, also allows to keep the heel in contact with the underlying base 12, so as to prevent vertical movements of the foot.

[0043] The illustrated embodiment is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0044] The materials used, as well as the dimensions of the individual components of the invention, may be the most pertinent according to specific requirements.

[0045] The disclosures in Italian Patent Application No. MI2003A000933 from which this application claims priority are incorporated herein by reference.

[0046] 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 interpretation of each element identified by way of example by such reference signs.

Claims

1. A wedge particularly for sports shoes, comprising a base, studs protruding from said base in a lower region at the toe and at the heel, said studs being arranged within complementarily shaped seats formed in the sole of said shoe, **characterized in that** at least one first tab protrudes upward along almost the entire length of the perimetric edge of said base and has at least one pre-scored region and at least one first opening at the metatarsus of the foot.

2. The wedge according to claim 1, **characterized in that** a first tab and a second tab protrude upward and approximately at right angles along almost the entire length of the perimetric edge of said base, said tabs having an upper perimetric edge that has an undulated profile.

3. The wedge according to claim 2, **characterized in that** said first tab that affects the inner side of the foot protrudes from said base starting from a region that is adjacent to the big toe and reaches a region that is adjacent to the interspace between the malleolus and the end part of the heel.

4. The wedge according to claim 2, **characterized in that** said second tab that affects the outer side of the foot protrudes from said base starting from a region that is adjacent to the ring toe to a region that is adjacent to the interspace between the malleolus and the end part of the heel.

5. The wedge according to claim 2, **characterized in that** said second tab, which affects the outer side of the foot, protrudes from said base starting from a region that is adjacent to the little toe to a region that is adjacent to the interspace between the malleolus and the end part of the heel.

6. The wedge according to one or more of the preceding claims, **characterized in that** said upper perimetric edge of said first and second tabs has a sinusoidal shape and is connected to the rear at a transverse wing that is substantially arc-like, said wing being arranged above the upper surface of said base at an included region that is adjacent to said second stud.

7. The wedge according to claim 2, **characterized in that** it is approximately U-shaped in a transverse cross-section taken at the plantar arch region.

8. The wedge according to one or more of the preceding claims, **characterized in that** one or both of said first and second tabs each has two separate pre-scored regions that allow, by removing them partially or completely, to customize the size reduction for the shoe.

9. The wedge according to claim 2, **characterized in that** said first and second tabs each has at least one first opening provided at the metatarsal region of the foot so as to form a recess for the adjacent region of the foot.

10. The wedge according to claim 9, **characterized in that** said transverse wing forms, with respect to said base, a second opening so as to form a recess for the heel that is surrounded in an upper region by said transverse wing.

11. The wedge according to claim 1 or 8, **characterized in that** said at least one pre-scored region affects said first and/or second tabs starting from said first opening to the vicinity of said second opening.

12. The wedge according to claim 1 or 8, **characterized in that** said at least one pre-scored region affects said first and/or second tabs starting from said region that is adjacent to the ring toe up to a region for connection with said transverse wing.

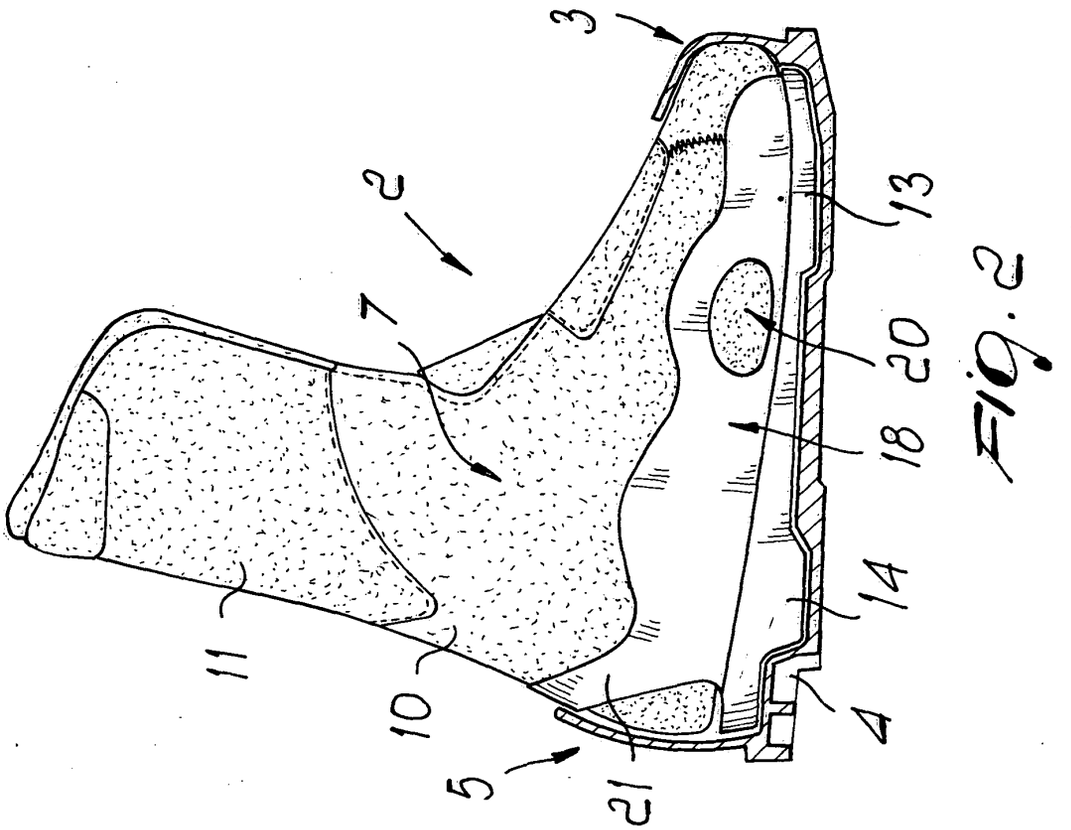

Fig. 2

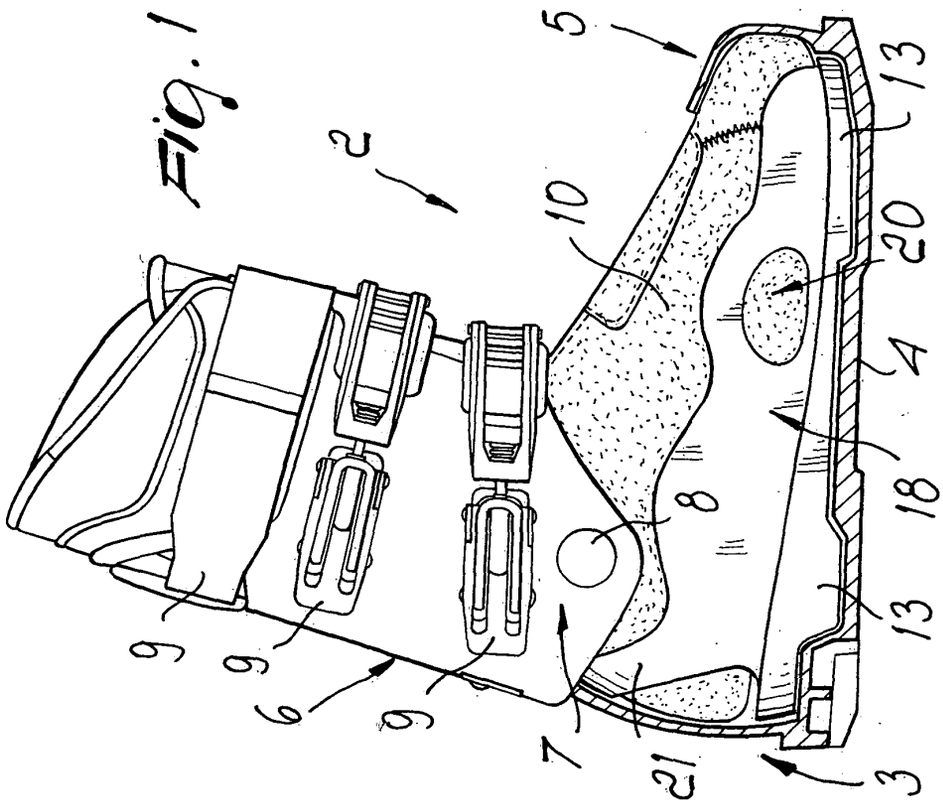

Fig. 1

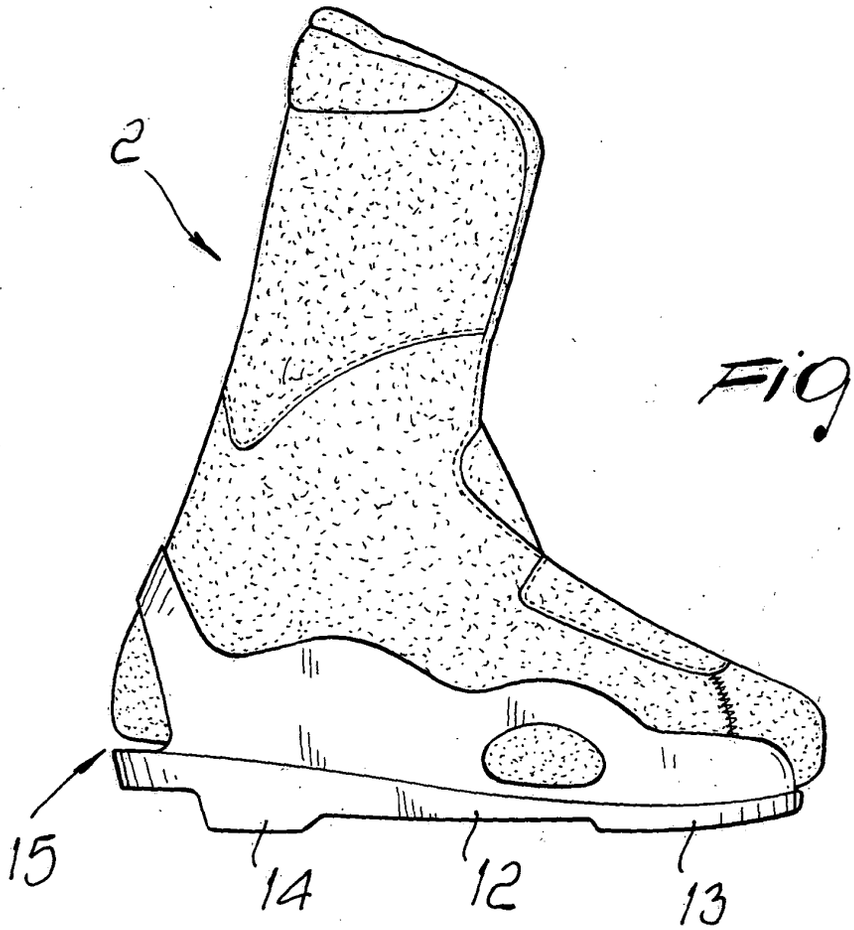

Fig. 3

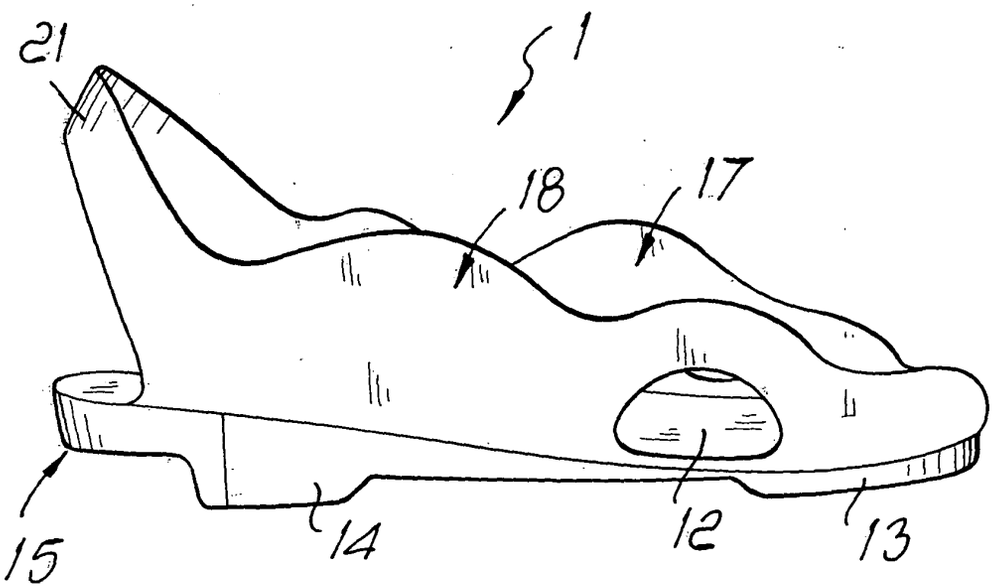

Fig. 4

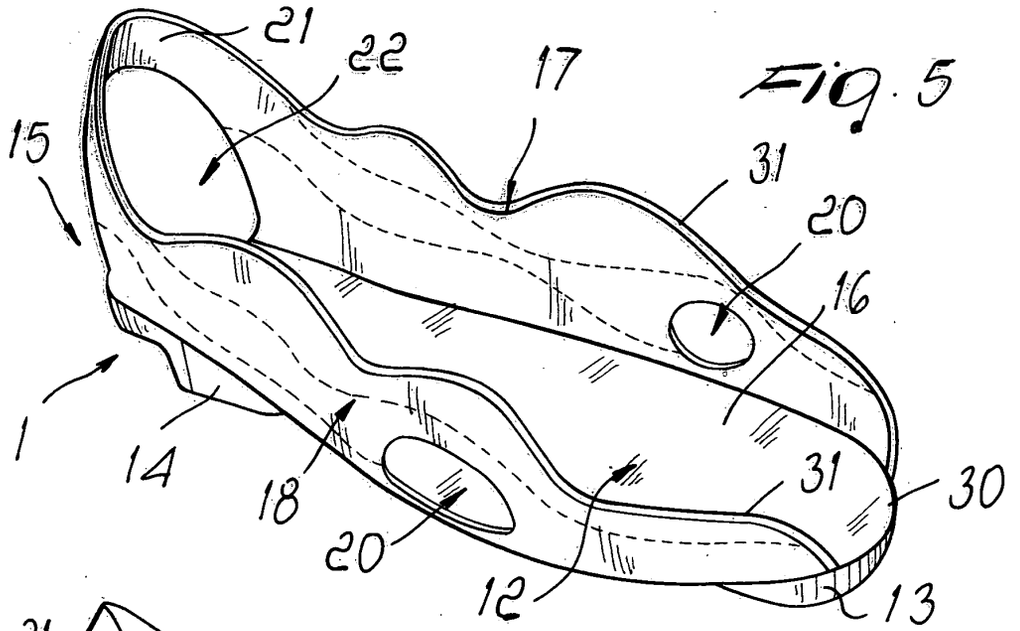

Fig. 5

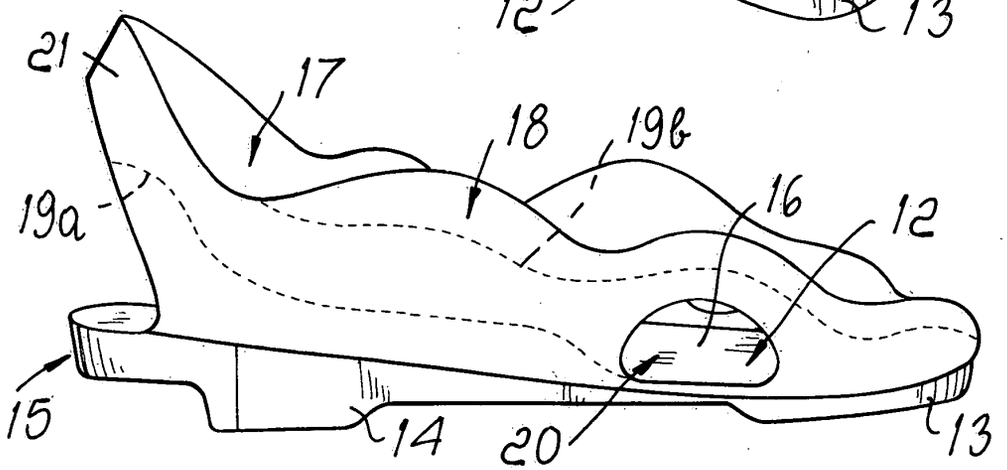

Fig. 6

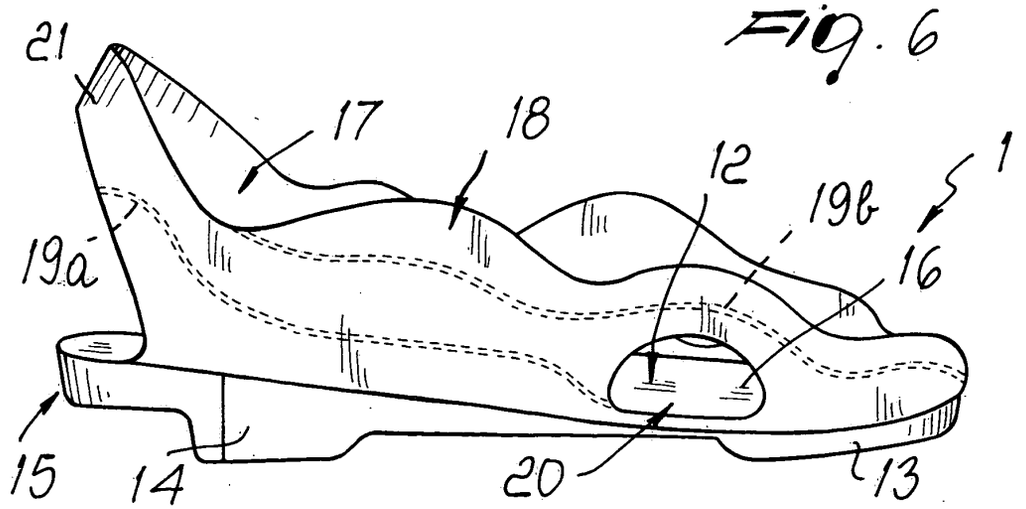

Fig. 7