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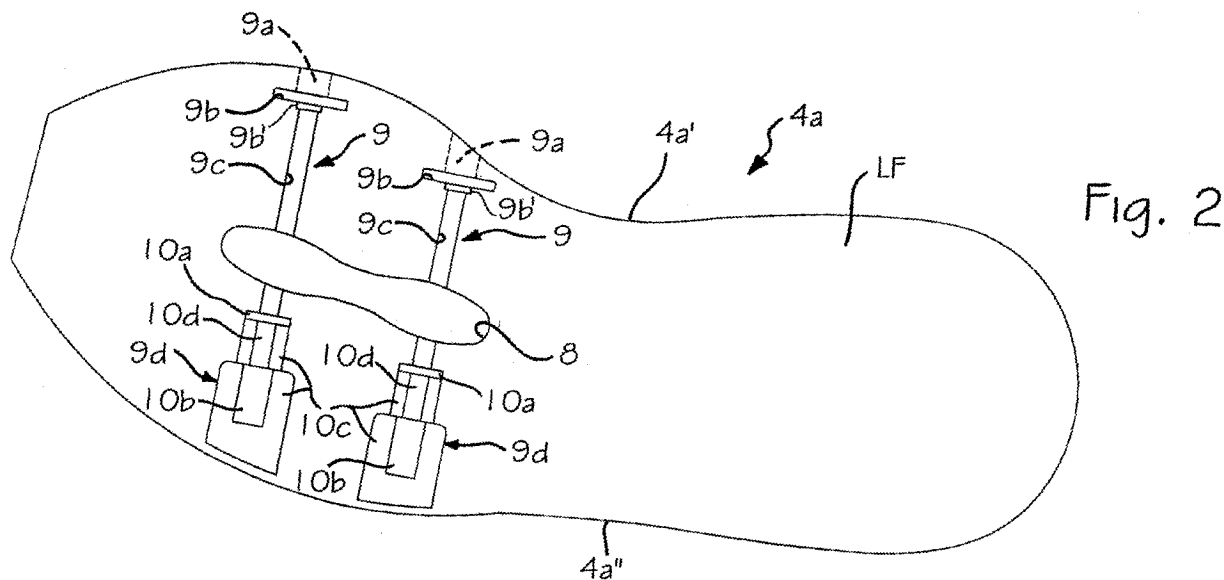
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(54) **Footwear with an adjusting system of a width dimension**

(57) A footwear (1) has a sole (3) comprising at least a resilient component having a peripheral profile, with a medial part (4a') and a lateral part (4a'') which define therebetween a width dimension. To the resilient component an adjusting system is associated, operable in

order to select a desired adjusting degree of the width dimension. The sole (3) comprises inspection means (15) arranged for allowing the visual check, from the lower part of the sole (3), of the adjusting degree selected by means of the adjusting system.



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Description

[0001] The present invention relates to a footwear including an adjusting system, suitable for allowing to adapt the shape of the footwear itself to the one of a user's foot.

[0002] It is known that, on the same length, the feet of different persons can vary in shape and width and that even the right and left feet of a same person can be different from each other. The greatest size differences are found in the width, especially in the zone of the sole of the foot.

[0003] For this reason, given a certain length, an identical footwear model should ideally be carried out in a multitude of versions, differentiated from each other in terms of width or "fitting", corresponding to the size of the plan circumference passing between the 1st and the 5th metatarsus.

[0004] De facto, the manufacturers perform a mediated choice of versions to be produced, as a function of the sale market of the footwear, its use destination, employed materials, construction typology. In each case, however, some different versions of an identical footwear model must be carried out, which, on the same length, are "larger" or more "narrow", in order to satisfy the feet variability.

[0005] Such productive diversification, as far as it is the result of a reasonable productive compromise, involves problems both for the footwears manufacturer, which has to arrange, anyway, different plants for shapes, soles, uppers, etcetera, and for the retailers, which have to buy a greater number of versions of the same model of footwear, trying to satisfy the various requirements of the end customers. It goes without saying that some customers will have to buy, however, slightly larger or more narrow footwears, if their feet do not correspond to the "mediated" dimensions of the various available versions.

[0006] In view of solving these drawbacks, the document US-B-5.813.146 proposes a footwear having an adjusting system conceived for allowing to adapt the shoe to the user's foot. The footwear includes an upper and a sole which, in its metatarsal zone, presents a discontinuity of material, in correspondence of which adjusting means are operative. The sole includes in particular at least an intersole, made of an elastically yielding material, and the aforesaid discontinuity can consist of a void, such as a slot formed in the intersole, or of an insert of a more yielding material relative to the one forming the rest of the intersole, or still of a small air chamber placed in the ambit of the intersole. The intersole thus conceived is positioned between the upper of the footwear and an outer sole of the same.

[0007] In one of the possible embodiments described in US-B-5.813.146, the adjusting means include threaded rods, placed transversally to the intersole and fixed at a central part of this latter; on the ends of such fixed threaded rods respective bushings with female thread are screwed, whose heads are accessible on the outer

profile of the intersole, in opposite parts of this latter. Each of such heads is equipped with a notch, susceptible of co-operation with a suitable tool so as to screw or unscrew the bushing on the respective threaded rod, for determining the compression or allowing the expansion of a corresponding portion of the discontinuity of material. In this way, it is possible to adjust in an independent way the width of the sole in multiple points of the metatarsal zone, between an ideal central longitudinal axis and the periphery of the sole itself, so as to adapt the shape of the sole profile to the user's foot.

[0008] The aim of the present invention is to carry out an improvement of the known art above mentioned, in particular for the purpose of render easier the adjustment step of the width of the footwear, either if it is carried out by the manufacturer, the retailer or the end user.

[0009] These and further objects, which will result more evident hereinafter, are attained according to the present invention by a footwear having the features shown in the appended claims, which form an integral part of the descriptive content of the present application of utility model.

[0010] Further objects, as well as the features and the advantages of the present invention will result evident from the following description and the enclosed drawings, which are given by mere way of explanatory and not limitative example, wherein:

- figure 1 is an elevational and partly sectional diagrammatic view of a sports footwear carried out according to the invention;
- figure 2 is a diagrammatic bottom view of the body of a sole component of the footwear of figure 1;
- figures 3 and 4 are two diagrammatic side views of the component of figure 2, of a medial part and a lateral part of the peripheral edge or profile of such component, respectively;
- figure 5 is a plan diagrammatic view of an insert forming part of an adjusting system of the footwear according to the invention;
- figures 6 and 7 are diagrammatic sections according to the lines VI-VI and VII-VII of figure 5;
- figure 8 is a front diagrammatic view of the insert of figure 5;
- figure 9 is an elevational diagrammatic view of two components forming part of the adjusting system of the footwear according to the invention;
- figure 10 is a diagrammatic side view of two screws forming part of the adjusting system of the footwear according to the invention;
- figure 11 is a diagrammatic bottom view of the component of figure 2, equipped with the adjusting means of figures 5-10, in a first possible configuration;
- figure 12 is a diagrammatic side view of the component of figure 11;
- figure 13 is a diagrammatic bottom view of a footwear according to the invention;

- figure 14 is a section according to the line XIV-XIV of figure 13;
- figure 15 is a view similar to that of figure 11, but with the respective component in a second configuration;
- figures 16 and 17 are diagrammatic sections, similar to those of figures 6 and 7, of an insert carried out according to a possible variant of the invention;
- figure 18 is a diagrammatic section, substantially similar to that of figure 14, for showing a possible variant of the invention, using the insert of figures 16 and 17;
- figure 19 is a diagrammatic section, substantially similar to that of figure 14, for showing another possible variant of the invention, using the insert of figures 16 and 17;
- figures 20 and 21 are two partial and diagrammatic sections of the component of figure 11 or 15, carried out according to another possible variant of the invention;
- figures 22 and 23 are a diagrammatic bottom view and a diagrammatic side view, respectively, of a component similar to that of figure 2, according to another possible variant of the invention.

In figure 1, a general sport footwear carried out according to the invention is generally indicated by 1, having an higher part or upper 2 and a lower part or sole; in the exemplary case, the sole comprises a lower or outer sole 3 and an intersole 4.

The type of embodiment of the upper 2 leaves out the purposes of the present invention and therefore it will not be described and shown in detail.

The outer sole 3 is made of a synthetic material, for example rubber with a differentiated hardness; in the exemplified case, in the outer sole 3 two portions 3a and 3b are found, each one defining a part of tread, for the back part and the front part of the footwear 1, respectively; between the two parts of outer sole 3a and 3b, in correspondence with the zone of the waist edge of the footwear 1, an intermediate portion 3c is foreseen, which does not necessarily perform tread functions. It should be noted that the outer sole 3 could also be formed in multiple discrete pieces stuck to the intersole 4, such as for example a back part, defining the portion 3a, a front part, defining the portion 3b, and an intermediate part defining the portion 3c.

The intersole 4 has a body 4a presenting an upper face, a lower face and a side edge or peripheral profile, this latter having a first tract, shown by 4a' in figure 2 and in the following defined as medial tract, and a second tract, shown by 4a'' in figure 2 and in the following defined as lateral tract; the medial tract 6a' is substantially the part of the peripheral profile of the intersole 4 which is faced towards the other foot of the user, when the footwear is worn, while the lateral tract 4a'' is substantially the part of the peripheral profile opposite to the medial one.

The intersole 4 is positioned between the upper 2

and the outer sole 3, and upon it, within the footwear 1, an arch support or plantar is foreseen, if necessary, of an extractable type, not shown; for this purpose, the intersole 4 defines in its higher zone a depression 4b, in which ambit the aforesaid arch support finds at least a partial housing.

The body 4a of the intersole 6 can be obtained by molding of an elastic, soft and light material, such as for example EVA, and then associated with the upper 2, for example of sticking in peripheral zones of its higher face; to the lower face of the intersole 4, equipped with adjusting means which will be described hereinafter, the outer sole 3 is successively associated, preferably through sticking.

In figures 2-4 the body 4a of the intersole 4 is depicted. As it can be seen in figure 2, in the front part of the body 4a, and particularly in the metatarsal zone, a discontinuity of material is foreseen, indicated by 8; in the exemplified case, such discontinuity consists of a hollow or void in form of a slot, which extends itself lengthwise in the same direction of longitudinal extension of the intersole 4. Alternatively to a hollow or a void, the discontinuity 8 could also be constituted by an insert or a body part formed in a material more easily compressible than the one forming the rest of the body 4a, or by a small air chamber, similarly to what described in the US-B-5.813.146 already mentioned, whose teachings regarding this are incorporated herein by reference.

In the body 4a two housings, indicated by 9, are further formed, substantially parallel to each other (although if such parallel arrangement is not strictly necessary) and which extend themselves transversally with respect to the body 4a and/or with respect to the longitudinal development of the slot 8.

Each housing 9 presents a first end portion configured as a cylindrical hole, indicated by 9a, having an end which opens on the medial tract 4a' of the peripheral profile of the body 4a; the other end of the hole 9a ends in correspondence with a substantially parallelepiped-shaped first seat 9b, opened on the lower face LF of the body 4a; adjacent the first seat 9b a further small seat 9b' is foreseen, having dimensions lower than the seat 9b and also opened on the lower face LF of the body 4a.

From the seat 9b', the housing 9 then proceeds with a substantially U-shaped groove 9c, also opened on the lower face LF of the body 4a; the groove 9c of each housing extends lengthwise transversally to the slot 8. The housing 9 finally ends with a second seat 9d, with a complex shape conformed for housing at least part of a respective insert, one of which is depicted with different views in the figures 5, 6, 7 and 8, where it is indicated by 11. In the example, the seat 9d is slightly recessed relative to the lateral tract 4a'' of the peripheral profile of the body 4a.

In the figures 5-8, only one of the inserts 11 is shown in different views, in view of the fact that the other

insert is of a substantially similar shape. The insert 11 presents a small-plate base 11a, from an end of which a front wall 11b is orthogonally raised, having a respective groove-shaped passage 11b'; in the central zone of the base 11a, from the same side from which the wall 11b is raised, a cylindrical tube 11c, internally threaded and opened at both the ends, is defined, the passage 11b' and the tube 11c being substantially coaxial to each other. In the surface of the base 11a opposite to the one in which the walls 11b and the tube 11c are raised, a substantially U-shaped relief or projection 11d is present, aligned at the open bottom of the tube itself. The seat 9d is shaped so as to have

- a first portion 10a, intended to receive the front wall 11b of the insert 11,
- a second portion 10b, intended to receive the tube 11c of the insert 11, and
- a third portion 10c, intended to receive the base 11a of the component 11, such that its surface from which the relief 11d is protruding results substantially flush with the surface of the lower face of the body 4a of the intersole 4.

[0011] It should be noted that between the portions 10a and 10b, a tract of seat 10d is also formed, which performs a sort of extension of the groove 9c of the housing 9.

[0012] The seat 9b is foreseen in order to house a small plate 12, visible in figure 9, which has a wholly parallel-piped shape and is equipped with a groove-shaped passage 12a.

[0013] In figure 10 two screws or adjusting rods are visible, indicated by 13, each one intended to co-operate with a respective insert 11. Each screw 13 has a respective head 13a, having a notch 13a' (see figure 10), a substantially cylindrical intermediate part 13b and a threaded end part 13c; on the part 13c two small flanges or washers 13a' and 13d are foreseen; the washer 13a' is at a short distance from the head 13a, while the washer 13d is in correspondence with the end of the thread.

[0014] The body 6a of the intersole 6 can be molded, with procedures and means known per se, so as to present the slot 8 and the housings 9. In each hole 9a a respective screw 13 is threaded, the threaded end 13c of which is then partly screwed in the tube 11c of the insert 11, with the washer 13d being positioned between the front wall 11b and the tube 11c of the insert itself; such operation is allowed by the elasticity of the material forming the body 4a and since the parts 13b, 13d of the screw 13 are of such a diameter that they can pass in the ambit of the passage 11b' of the front wall 11b of the insert 11.

[0015] The insert 1 is then introduced in the respective seat 10, with the surface of its base 11a substantially flush with the surface of the lower face of the body 4a; in each seat 9b a respective small plate 12 is then introduced, such that its passage 12a is fitted on the cylindrical

portion 13b of the screw 13; so the small plate 12 became then positioned between the head 13a and the washer 13a' of the respective screw 13. Finally, the small plate 12' of figure 9 is slipped on the screw 13, such that the passage 12a' results fitted on the threaded part 13c of the screw itself, between the washer 13d and the front wall 11b of the insert 11.

[0016] After the aforesaid operations, the intersole 4 is substantially as depicted in figure 11. For the purposes of the assembly, the screw 13 can be screwed in the tube 11c in a predefined position, for example as visible in figure 11; in such case, the washer 13d, which is, as already mentioned, at the limit of thread of the end 13c, is in contact against the small plate 12a' which is in turn in contact against the front wall 11b of the insert 11.

[0017] In the assembled condition and as it can be seen in figure 12, in correspondence with the holes 9a on the medial tract 4a' of the peripheral profile of the intersole 4 the heads 13a of the screws 13 result accessible, and thanks to the presence of the respective notches 13a', can be rotated, for example by means of a screw-driver.

[0018] According to the main aspect of the invention, the footwear 1 has inspection means, intended to allow the visual control of the adjusting degree, in correspondence with a zone of the sole 3, 4 which is intermediate with respect to the medial 4a' and lateral 4a" tracts of its outer profile.

[0019] For this purpose, in the exemplified embodiment, the body of the insert 11 is made of a substantially transparent plastic material and the outer sole 3, in its front part 3a, is equipped with openings or passages, suitable for allowing the direct view of at least a part of a respective transparent insert 11.

[0020] In figure 13 the footwear 1 is depicted through a bottom view, while in figure 14 a partial section of the sole 3, 4 is depicted. As it can be seen, in the part 3a of the lower or outer sole two passages or holes are foreseen, each one located in correspondence with the projection 11d of a respective insert 11. As it can also be seen in figure 14, the peripheral zone of the base 11b of the insert 11 is covered by the outer sole 3, so as to ensure the positioning of the insert itself in the ambit of the respective seat formed in the body 4a of the intersole.

[0021] Through the passages 15 and the transparent body of the inserts 11 it is possible to visually check the extent of the screwing of the threaded portion 13c of each screw 13 in the respective tube 11c, that is of their co-operation or coupling degree. For this purpose, on the surface of the base 11a of the insert intended to remain exposed in correspondence with a respective passage 15, reference notches can be suitably formed, useful for the adjusting purposes.

[0022] For the purposes of carrying out of the footwear 1, therefore, after the obtainment of the intersole 4 equipped with the adjusting means 11-13, on the lower face LF of the intersole itself the outer sole is stuck, such that the passages 15 result positioned as previously de-

scribed.

[0023] The functioning of the adjusting means of the footwear is very easy. After the screwing of a screw 13, the respective head 13a presses on the adjacent small plate 12, with the consequence that the part of the body 4a of the intersole 4a which is between such small plate 12 and the button hole 8 is forced towards the insert 11, and/or this latter is pulled towards the small plate 12; this determines a compression of the discontinuity 8, which allows to obtain a width decrease of the intersole 4, and therefore a modification of the shape of its peripheral profile.

[0024] In figure 15 the maximum screwing situation of the two screws 13, determined by the contact of the respective washers 13d on the front end of the respective tubes 11c of the inserts 11, is depicted; it should be noted that in such a figure the outer sole 3 has not been shown, for greater clarity sake. As it can be seen, in such condition the discontinuity 8 results substantially compressed, with a consequent decrease of the width of the intersole 4 in the metatarsal zone; always in figure 15, the dotted part points out the shape of the peripheral profile of the intersole 4 in a non adjusted condition, namely as in the case depicted in figure 11. On the contrary, starting for example from the configuration of figure 15, by unscrewing the screws 13 the discontinuity 8 tends to expand itself, thanks to the elasticity of the material forming the intersole 4, returning in the configuration of figure 11.

[0025] In each case, the extent of the adjustment carried out through the screws 13 can be visually controlled with accuracy, through the passages 15 and the transparency of the material forming the inserts 11; as mentioned, the inserts could be equipped of proper indicating notches. As it can be assumed, therefore, the width or the "fitting" of the shoe according to the invention can be accurately personalized in an easy and repetitive manner. This is particularly advantageous, besides for the manufacturers and the retailers of footwears, also for the end users. For example, in some circumstances, a user will be able to provisionally change the adjustment in view of a particular use situation of the footwear, however having then the possibility of re-establish the initial adjustment, thanks to the possibility of physically precisely observe, and therefore remember, the initial adjustment degree through the passages 15 and the transparency of the inserts 11.

[0026] Of course, construction details and embodiments could widely vary with respect to what has been described and shown by mere way of example, without leaving the ambit of the present invention.

[0027] For example, the body of the component 11 could also be made of an opaque material, with its base portion 11a having a slot longitudinally extending in correspondence with the threaded tube 11c. Such a variant is diagrammatically depicted in figures 16 and 17, wherein the aforesaid slot is indicated by 11e. In this way, through the slot 11e it is possible to see the threaded end 13c of

the screw 13, and therefore visually check the adjustment degree; for this purpose, on the base 11a reference notches could be also foreseen. In this embodiment, the zone wherein the slot 11e is located can be suitably covered by a thin layer of transparent material; as visible for example in the section of figure 18, such layer can consist of a transparent element 11f interposed between the intersole 4 and the outer sole 3, or being directly constituted of a transparent portion of the outer sole 3, as it can be seen in figure 19.

[0028] Without considering the selected implementation and for the purpose of making easier the vision of the adjustment degree, the screws 13 or the means which replace them could have at least in part a colouring which contrasts with the one of the material forming the body 4a of the intersole 4 and/or the outer sole 3.

[0029] In an alternative embodiment, the extent of the adjustment could also be made visible through the position of the washer 13d, instead of the threaded end of the respective screw 13; in this case, with an insert 11 having the slot 11e, this latter will be obviously obtained in correspondence with the tract of the stroke allowed for the washer 13d, such stroke being produced by the movement of the respective screw 13.

[0030] On the slot 8, in case it is formed by a void crossing the body 4a, a covering stuck on the upper face of the body itself can be foreseen; such a covering, comprising for example a fabric or an elastic or flexible material sheet, is indicated by 14 and diagrammatically depicted in section in two conditions in figures 20 and 21, corresponding to the two situations of extreme adjustment in figures 11 and 15, respectively.

[0031] In the figures 22 and 23 an embodiment of the invention is finally depicted, wherein in the body 4a of the intersole a single housing 9 is foreseen and wherein the adjusting means are formed by a single insert 11 and a screw 13, with the respective two small plates 12, 12'. The adjustment, in the case of the variant of figures 22, 23 occurs with the same procedures previously explained.

[0032] In the embodiments previously exemplified, the adjustment of the width or "fitting" allows to obtain a substantially symmetrical variation of the peripheral profile of the footwear, that is the adjustment is carried out in substantially equal proportions between the medial 4a' and the lateral 4a" tracts of said profile. Nothing prevents, in principle, to foreseen an adjustment in independent points, for example as described in US-B-5.813.146, being understood that for one or more adjusting means respective inspection means will be foreseen, accessible from the lower face of the sole 3, 4 and particularly formed at least partly in the lower sole 3. Also the adjusting means could foresee a mutual coupling other than the threaded one previously described, and being for example in form of small plates co-operating together in a varying manner through respective teeth or ratchet gears, similarly to what has been described in the mentioned US-B-5.813.146, whose teachings concerning this as-

pect are considered incorporated herein by reference.

[0033] For intersoles made of an extremely elastic and yielding material, the body 4a could be possibly overmolded directly to the adjusting means, which in this case should be previously assembled together and directly placed within the overmolding mold.

[0034] The invention has been described with a particular reference to a sport footwear, but it is evident that the same is susceptible of application also to other kinds of shoes.

Claims

1. A footwear (1) having an upper (2) and a sole (3, 4), the sole (3, 4) comprising at least a resilient component (4) having

- a peripheral profile (4a', 4a'') with a medial part (4a') and a lateral part (4a''), said parts defining therebetween a width dimension,
- a discontinuity of material (8) arranged for allowing a variation of said width dimension, and therefore a shape variation of said peripheral profile (4a', 4a''),

wherein to the resilient component (4) an adjusting system (11-13) is associated, operable in order to select a desired adjusting degree of said width dimension, in particular for the purpose of adapting the shape of said peripheral profile (4a', 4a'') to a foot of a user of the footwear (1), **characterized in that** said sole (3, 4) comprises inspection means (11, 13, 15; 11e, 11f; 11e, 3) arranged for allowing the visual check, in a zone of said resilient component (4) which is intermediate with respect to said medial and lateral parts (4a', 4a''), of the adjusting degree selected by means of said adjusting system (11-13).

2. Footwear according to claim 1, **characterized in that** said inspection means (11, 13, 15; 11e, 11f; 11e, 3) are configured in order to allow said visual check from the lower part of the sole (3, 4).

3. Footwear according to claim 1 or 2, **characterized in that** said inspection means (11, 13, 15; 11e, 11f; 11e, 3) comprise a component (11; 11f; 3) made at least partly of a substantially transparent material.

4. Footwear according to claim 1, **characterized in that** said discontinuity of material (8) is formed in said resilient component (4) substantially in correspondence with the metatarsal region of the sole (3, 4).

5. Footwear according to claim 1, **characterized in that** said adjusting system (11-13) comprises at

least a first element (11) and a second element (13) susceptible of co-operation in a varying extent and that said inspection means (11, 13, 15; 11e, 11f; 11e, 3) are arranged for allowing a visual check of the co-operation degree between the first and the second elements (11, 13).

6. Footwear according to claim 5, **characterized in that** within said resilient component (4) at least a first housing (9) for said first and second elements (11; 13) is formed, said housing (9) transversally extending itself relative to a longitudinal development of said discontinuity of material (8).

7. Footwear according to claim 5 or 6, **characterized in that** said first and second elements (11, 13) co-operate together by means of a threaded coupling.

8. Footwear according to claim 7, **characterized in that** said first element comprises an insert (11) having a hollow part (11c) with a female thread and said second element comprises a screw element (13) having a respective head (13a) and at least a threaded end part (13c), susceptible of screwing in said hollow part (11c) of the first element (11).

9. Footwear according to claim 8, **characterized in that** said insert (11) is made at least partly of a transparent material and forms at least part of said inspection means (11, 13, 15; 11e, 11f; 11e, 3).

10. Footwear according to claim 8, **characterized in that** said insert (11) has a slot or notch (11e) which forms at least part of said inspection means (11, 13, 15; 11e, 11f; 11e, 3).

11. Footwear according to at least one of the preceding claims, **characterized in that** said resilient component is an intersole (4), that said sole (3, 4) further includes an outer or lower sole (3) fixed to said intersole (4) and that said inspection means (11, 13, 15; 11e, 11f; 11e, 3) include at least one of

- an opening or passage (15) formed in said outer sole (3),
- at least a part of said outer sole (3) made of a transparent material,
- a transparent element (11f) at least partly interposed between said intersole (4) and said outer sole (3).

12. Footwear according to at least one of the preceding claims, **characterized in that** at least a portion (9a) of said housing (9) is configured as a cylindrical hole opened on said peripheral profile (4a', 4a''), in particular on said medial part (4a').

13. Footwear according to at least one of the preceding

claims, **characterized in that** at least a portion (9b, 9c, 9d) of said housing (9, 10) is configured as a cavity opening on a greater face (LF) of said resilient component (4).

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- 14.** Footwear according to claim 13, **characterized in that** said cavity (9d) is conformed for housing at least part of an insert (11) having a surface intended to remain substantially flush with a surface of the lower face of the resilient component (4).

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- 15.** Footwear according to claim 1, **characterized in that** said discontinuity of material includes at least one of

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- a hollow or a void (8) formed in the resilient component (4);
- an insert or a part of the body of the resilient component (4) made of a more compressible material than the material forming the rest of the resilient component (4);
- a chamber containing a fluid.

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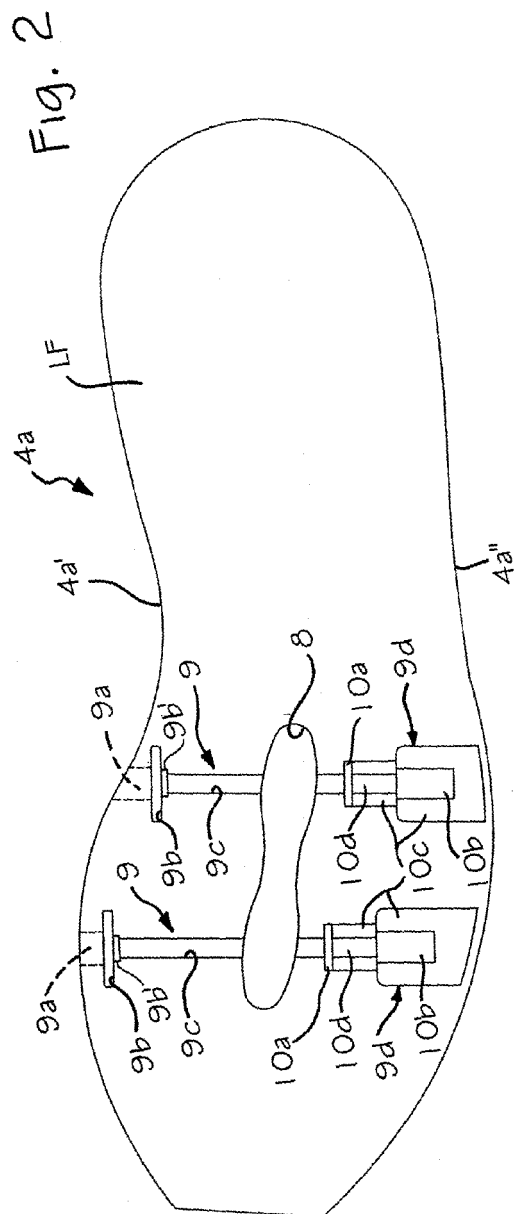
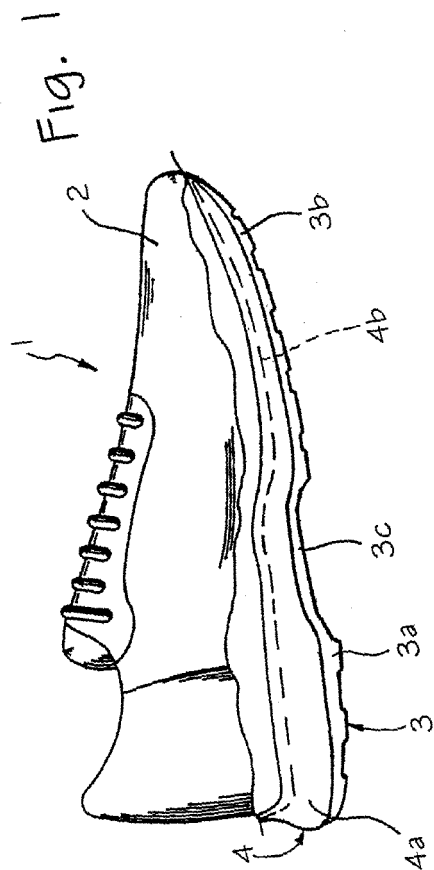
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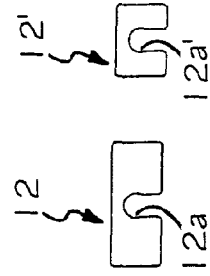
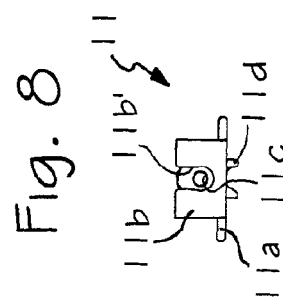
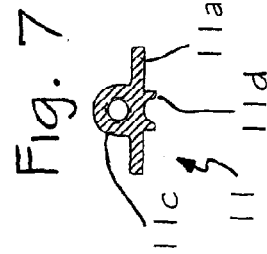
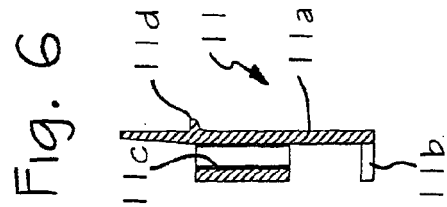
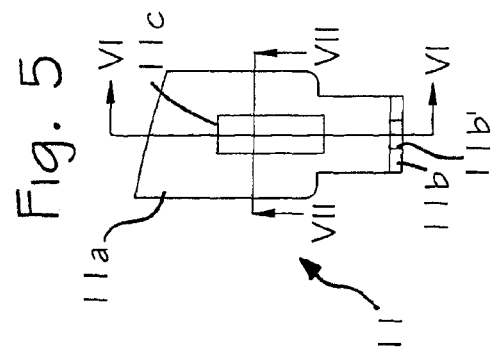
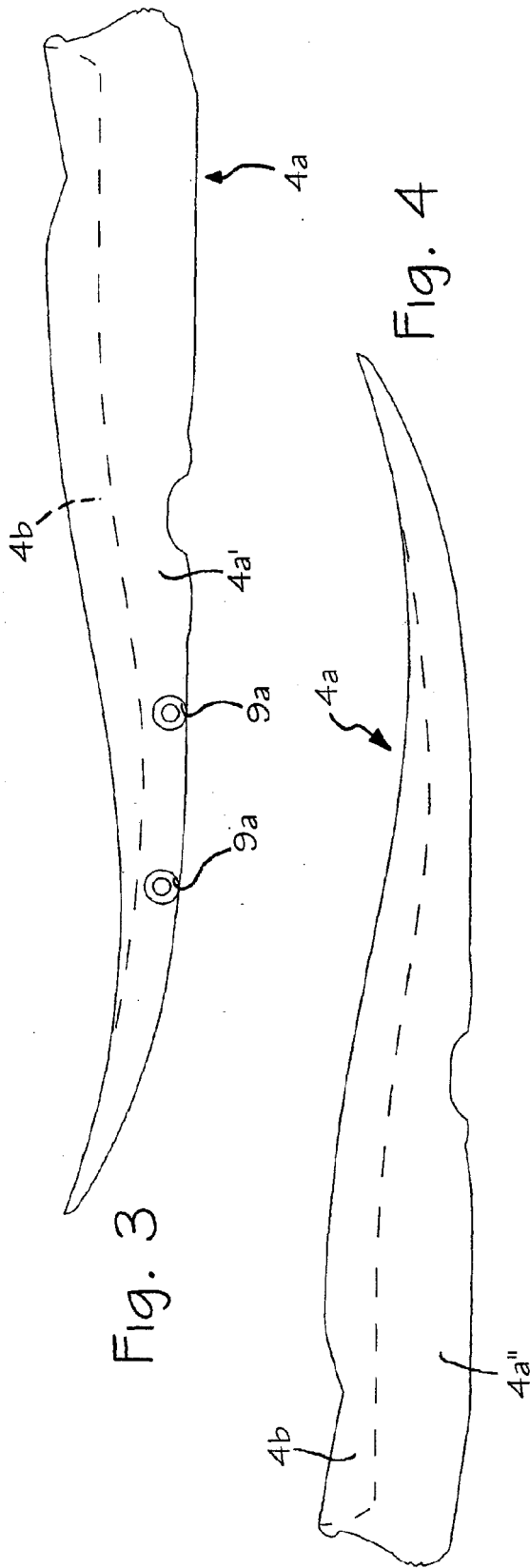
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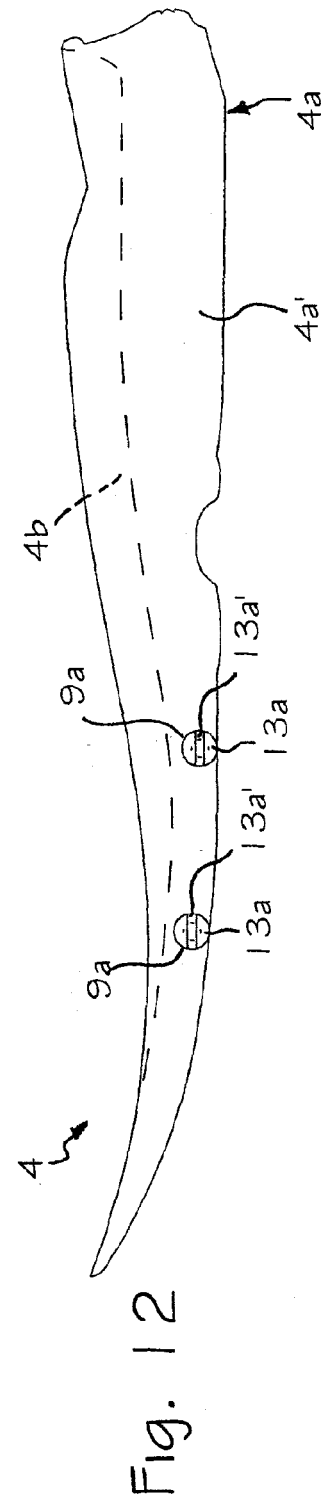
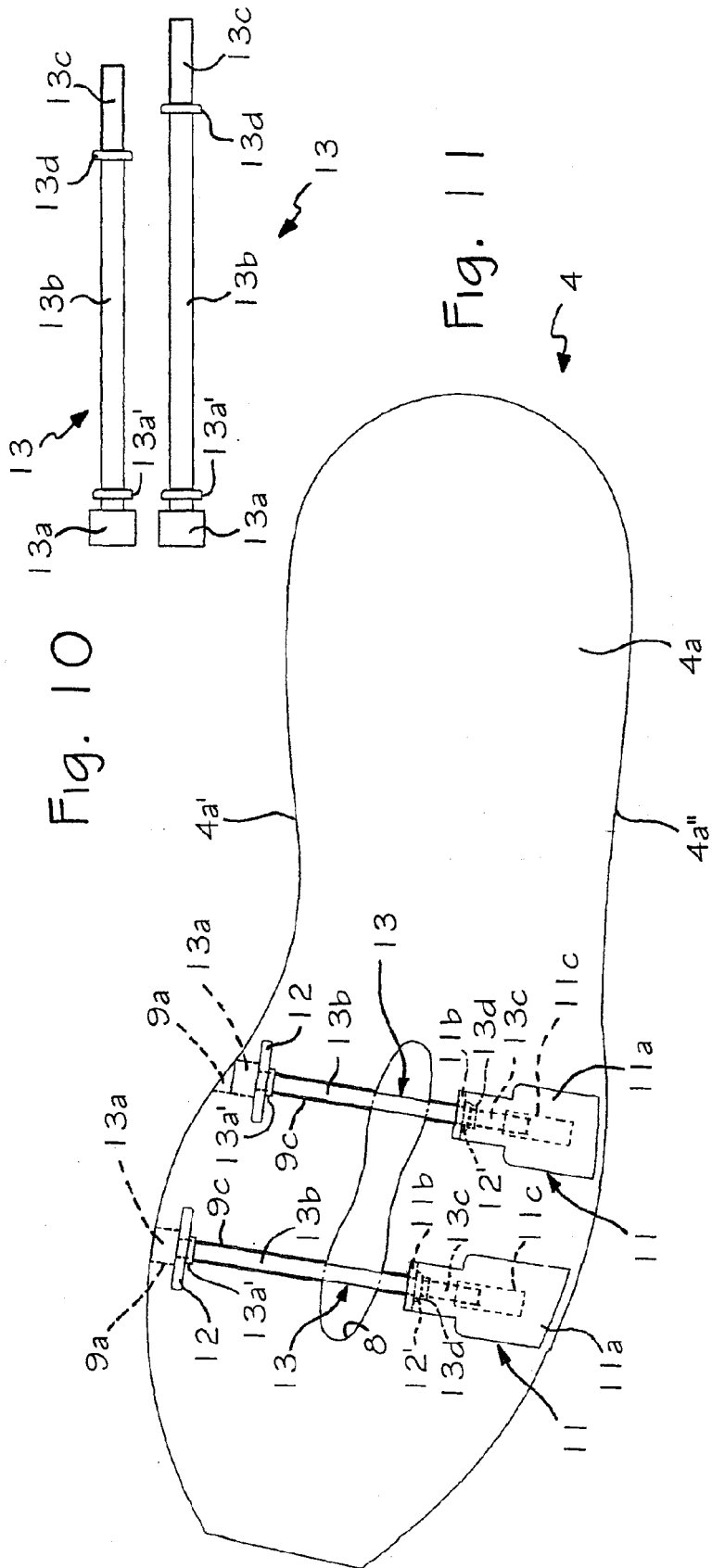


Fig. 13

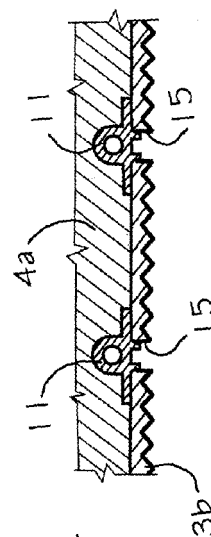
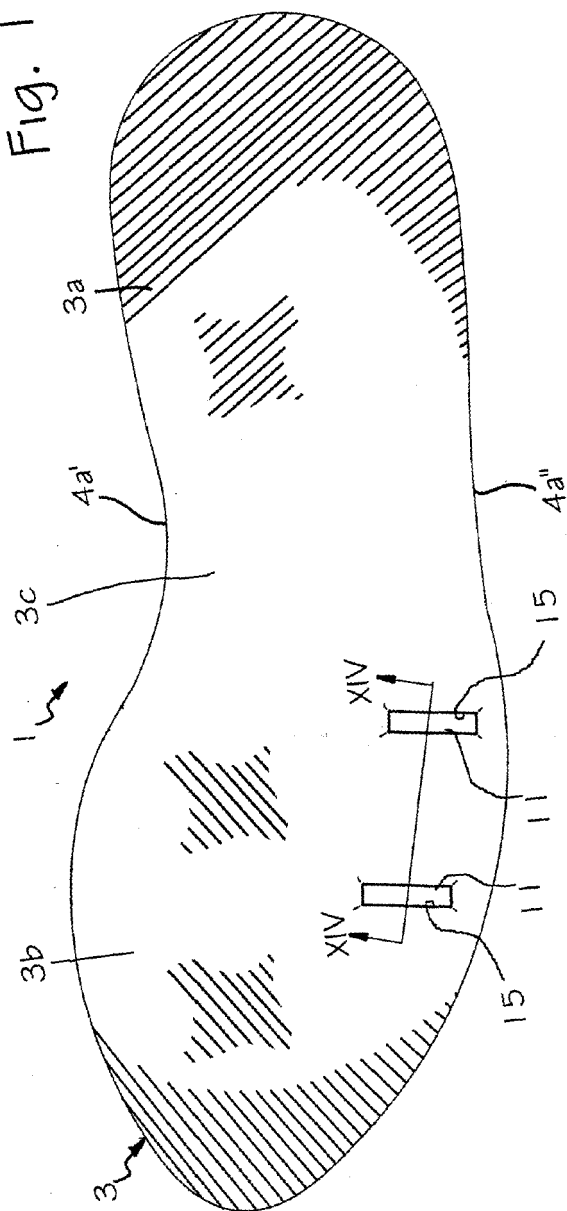


Fig. 14

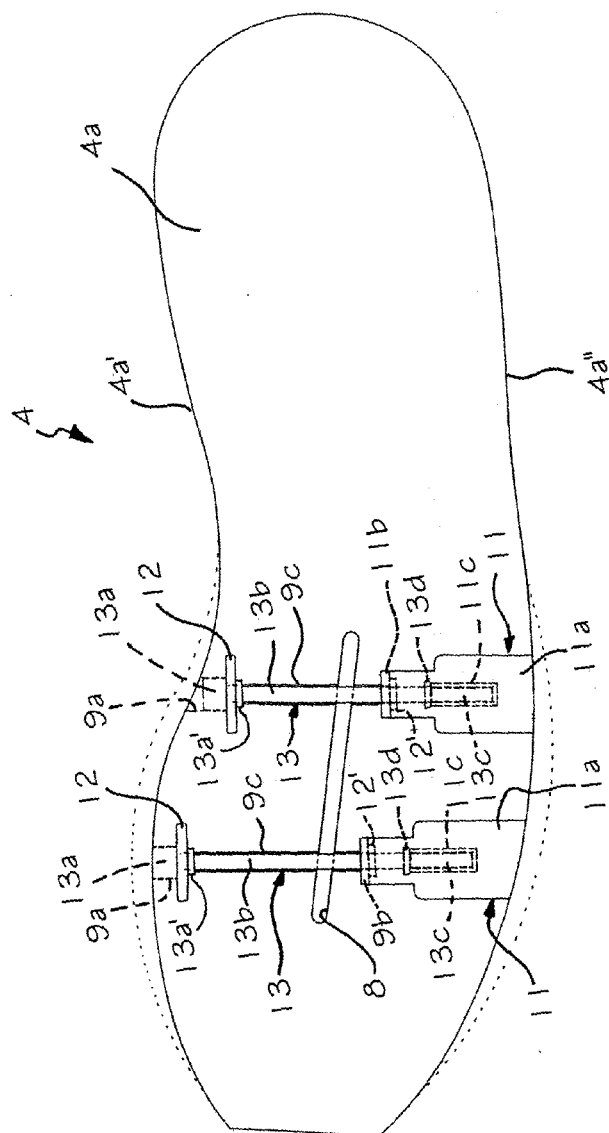


Fig. 15

Fig. 16

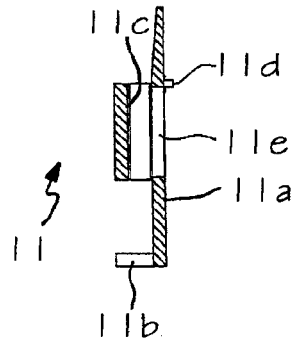


Fig. 17

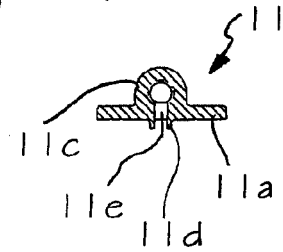


Fig. 18

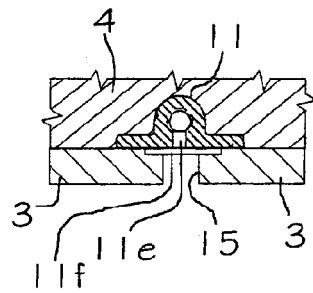


Fig. 19

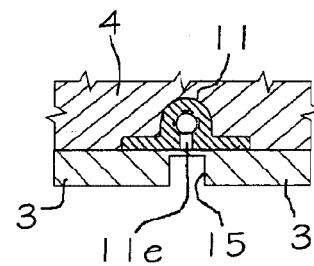


Fig. 20

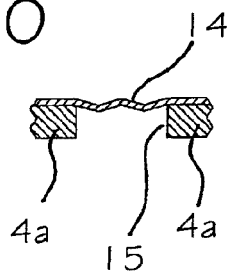
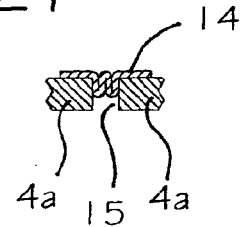
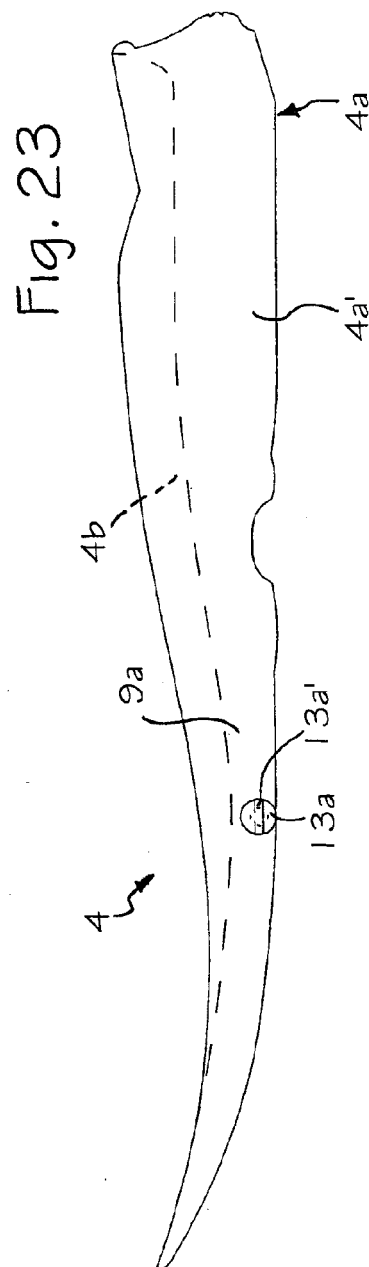
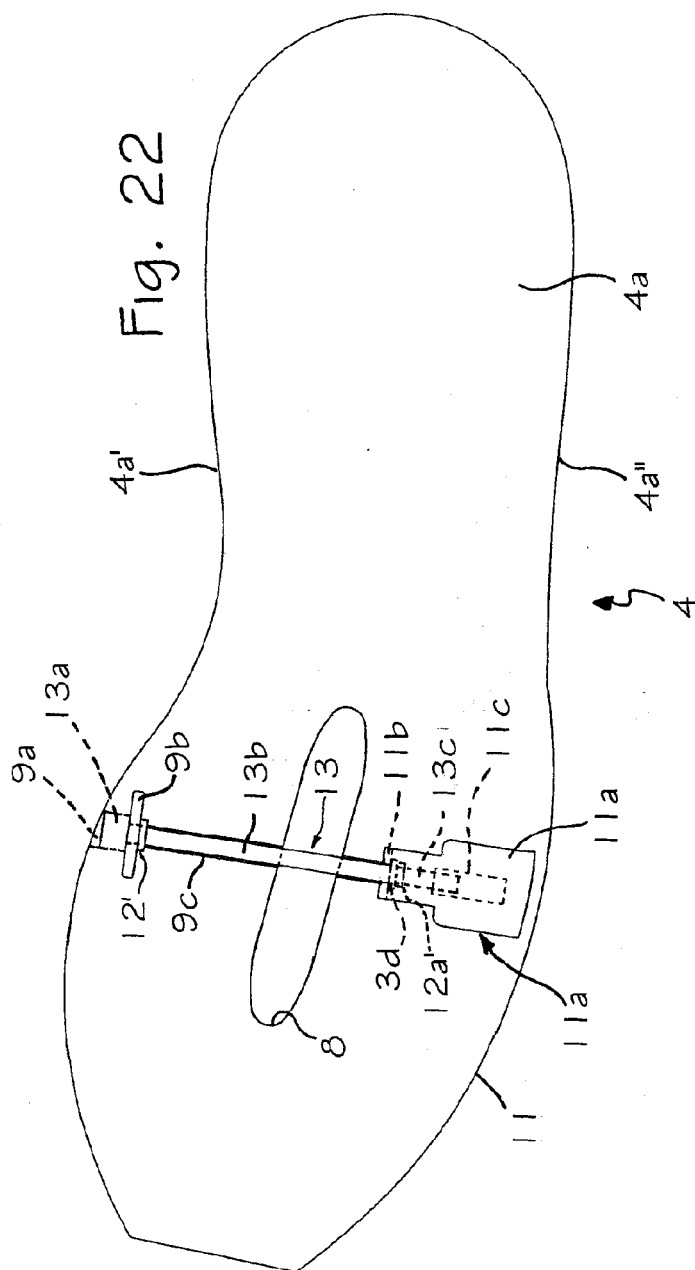


Fig. 21







European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 06 10 0019

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			A43B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		25 April 2006	Claudel, B
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The members are as contained in the European Patent Office EDP file on
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25-04-2006

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