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(54) **Shoe and last therefor.**

(57) A shoe at least provided with a sole with foot surface and an upper shoe with counter extending above the foot surface and connected to an edge of the sole and an edge party closing above the instep and the heel of the foot and bounding the instep opening of the shoe. When a shoe fits, between the toes and front part, a free space of 11 to 15 mm is free, because the leading edge of the toes slides forward in the shoe during bending movement of the foot. In children's shoes a part of this space is used for absorbing the growth of the foot. During growth the ball of the foot moves forward and no longer lies precisely on the deepest point of the shoe. The invention proposes a shoe in which the edge part of the instep opening supported by the counter, at least on the heel side, is provided with removable filler means to reduce the instep opening, this such that the rear portion of the edge part of the instep opening is displaced relative to the sole in the direction of the front part of the shoe. During growth the ball line remains at the same position relative to the foot bed and the foot can grow two-thirds rearward and one-third forward if during growth the filler means along the edge part are removed. The foot hereby remains optimally supported by the shoe.

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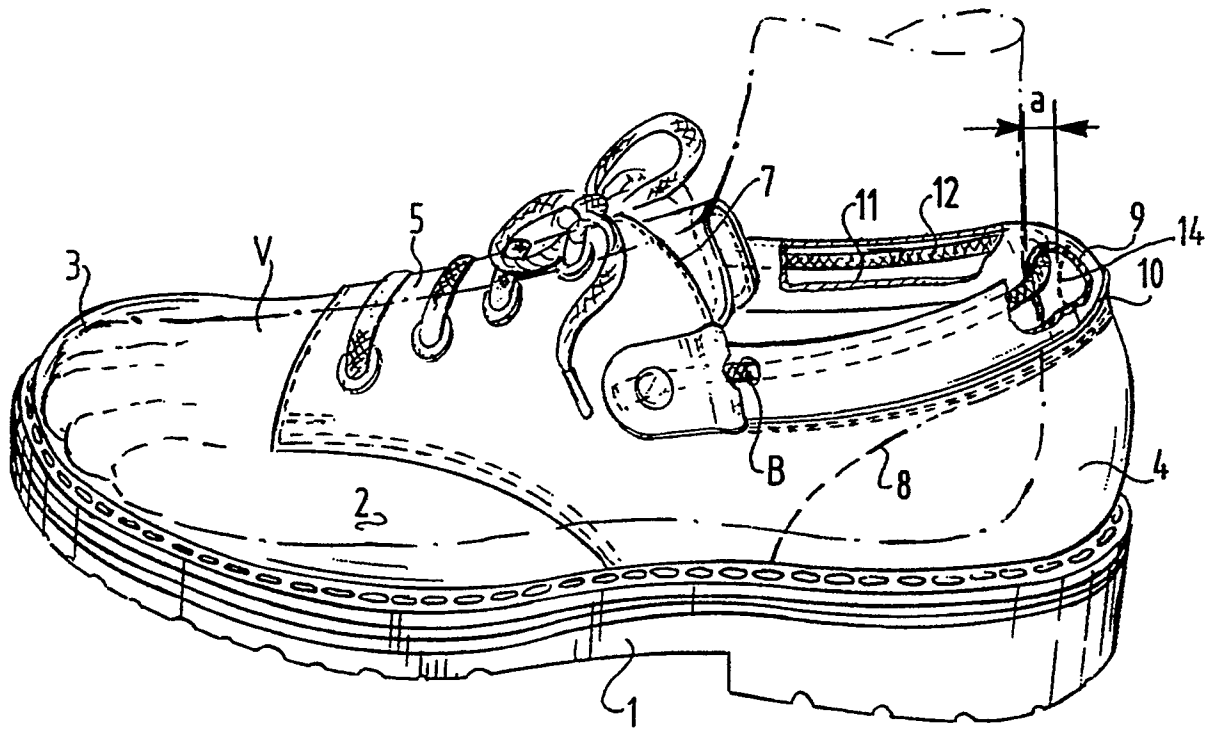


FIG.2

SHOE AND LAST THEREFOR

The invention relates to a shoe at least provided with a sole with foot surface and an upper shoe with counter extending above the foot surface and connected to an edge of the sole and an edge party closing above the instep and the heel of the foot and bounding the instep opening of the shoe.

When a shoe fits, there is between the toes and front part, e.g. toecap, a free space of 11 to 15 mm, the so-called additional lengthening. This space is necessary because the leading edge of the toes slides forward in the shoe during bending movement of the foot. In children's shoes a part of this space is used for absorbing the growth of the foot. It is assumed in practice that the growth of one size (one French size of 6 2/3 mm) is permissible. A drawback here is that during growth the ball of the foot moves forward and no longer lies precisely on the deepest point of the shoe. Purchase of excessively large shoes in order to provide growing space for a number of sizes is not possible because too great an additional lengthening causes danger of tripping.

In more expensive children's shoes the phenomenon occurs that at the moment the available growing space is used up the shoes are still in such a good state that they are not replaced with a new pair. Research has shown that as a consequence shoes are worn that are two to three sizes too small.

The invention has for its object to provide a shoe with which the above stated drawbacks are obviated and therefore proposes a shoe that is distinguished in that the edge part of the instep opening supported by the counter, at least on the heel side, is provided with removable filler means to reduce the instep opening, this such that the rear portion of the edge part of the instep opening is displaced relative to the sole in the direction of the front part of the shoe.

When a shoe is purchased it has to fit on a foot whose ball line coincides with the deepest point of the foot bed. During growth the ball line remains at the same position relative to the foot bed and the foot can grow two-thirds rearward and one-third forward if during growth the filler means along the edge part are removed. The foot hereby remains optimally supported by the shoe for a long period because the relatively stiff counter carries the filler means on the top and can therefore carry away the forces directly. The foot thereby remains stably supported.

In one embodiment of the invention the removable filler means are formed by a flexible pull element located in the edge part and of a predetermined length shorter than that of the periphery of the counter, wherein both ends of the element are fixed to the upper shoe close to the front part of the edge part of the instep opening facing the front part of the shoe.

When the shoe is purchased, the pull element has

a fixed position relative to the shoe, that is, the inside of the edge part of the instep opening is displaced towards the front, whereby a space is created at the heel since the pull element, which engages on the portion of the foot located above the heel, moves this in the direction of the front part of the shoe. After some growth of the foot the pull element can be released so that the inside of the edge part of the instep opening can displace to the rear and the counter of the shoe then closes round the heel as a "normal shoe."

According to an embodiment of the invention the edge part of the instep opening is formed by strip of material folded round to a tube shape, the lengthwise edges of which are fixed to the shoe, for example by stitching. The pull element is carried slidably through this tubular part.

According to a further development a cushion-like thickening is arranged in this tubular edge portion.

The pull element can be embodied according to the invention as shoelace, cord and may or may not be fastened to the shoe permanently by means of nails or releasably by means of velcro tape and the like.

According to another embodiment the removable filler means can also be formed by a chamber which can for instance be filled with a removable medium. This medium may be air, liquid or solid substance in the form of a cord or the like.

The invention also relates to a last consisting of a toe piece and fixed thereto a heel piece with heel shank.

This last is characterized according to the invention in that the rearmost portion of the heel shank remote from the toe piece is displaced stepwise relative to the heel piece in the direction of the toe piece.

Above mentioned and other features of the invention will become apparent from the figure description hereinbelow of a number of embodiments. In the drawing:

fig. 1 shows a side view of a shoe according to the invention with a foot drawn therein,

fig. 2, 3 and 4 show respectively a perspective side view of a shoe according to a first embodiment with single pull element, a second embodiment with double pull element and a third embodiment with releasable pull element,

fig. 5 is a perspective view of a fourth embodiment of the filler means according to the invention,

fig. 6 is a perspective rear view of a shoe provided with the filler means of fig. 5,

fig. 7 is a perspective side view of a last suitable for manufacturing a shoe according to any of the figures 2-6.

Designated in the figures with the numeral 1 is the sole of the shoe and with the numeral 2 the upper

shoe which is arranged on the sole and which can be fixed in typical appropriate manner to the sole 1 along the periphery thereof. The construction of the sole and the shape of the upper 2 is random and they may be made from random materials, for instance leather. The upper shoe 2 has in the embodiment shown a front part portion 3 and a heel portion 4, wherein the latter extends above the front part portion 3 by means of closing flaps 5. The closing flaps are closed by means of a shoelace 6. The form of closure by means of shoelaces may be replaced by any other suitable closure. The heel portion has a top edge, generally designated 7, which bounds the instep opening. This edge part 7 thus consists on the one hand of the edge of the closing flaps 5 and on the other of the upper wall of the heel portion 4. This upper edge takes a thickened form in the embodiments shown. The heel portion 4 is reinforced by the counter, the boundary of which is indicated with 8.

The foot designated V in fig. 1 is placed in the shoe such that the ball line designated L lies on the deepest point of the foot bed. According to the invention the foot V must always remain during growth with this ball line on the same point of the foot bed.

The shoe already has a normal toe additional length, that is, the space in which the toe can move about, but is purchased too large for too small a foot V'. During growth the toe can therefore grow towards the front over a determined distance.

According to the invention the inside of the edge part 7 is provided with a filler means which bounds the instep opening at the rear. This filler means 9 can be embodied in various forms, which is elucidated further hereinbelow. Because the filler means 9 is removable the heel of the foot can move towards the rear during growth, this such that during growth the ball line remains on point L. It is assumed here that the space behind the heel and in front of the toe is sufficient to receive growth of respectively two-thirds to the rear and one-third towards the front.

Owing to the counter 8 the filler means is firmly supported and, also in the case of the small foot V', will enjoy sufficient support from the shoe in both rearward and lateral sense.

In the embodiments according to fig. 2, 3 and 4 the filler means 9 is embodied as an edge strip of suitable material folded to a tube shape which is fixed at 10 to the shoe, for instance by means of a stitched seam. This edge 9 is moreover thickened by means of foam material or the like 11 which gives a more pleasant load on that foot portion for the user.

Arranged according to the invention through the tubular edge part 9 is an elongate flexible element 12 which is fixed to the closing flaps 5 on both sides thereof by means of a nail 13 or the like. The length of the pull element 12 is such that the inner part of the edge part 9 is made narrower, that is, the inner part thereof is displaced relative to the sole 1 in the direc-

tion of the nose part 3. This displacement is indicated with a in fig. 3.

The foot is held wholly in the correct position relative to the shoe 2 by the narrowed edge part 9 above the heel portion 2. When the foot grows, which is indicated with broken dash-dot lines, then there is, as stated, space at both the front and the rear to receive the lengthening foot. After a certain period of wear the element 12 can be cut through, for instance at position B, whereby the element 12 will slide freely through the tubular edge part 9 and this latter can assume the position indicated with the broken line 14. The instep opening becomes proportionally larger and the user can therefore wear the shoe for a longer period.

The embodiment according to fig. 3 is distinguished from that of fig. 2 in that two pull elements 12, 12' are trained through the tubular edge part 9. The pull elements have a mutually varying length so that enlarging of the edge part 9 can take place in two stages, namely over an initial distance "a" and a distance "b".

The embodiment of fig. 4 is distinguished in that the pull element 12 that is likewise trained slidably through the tubular edge part 9 is releasably fastened on at least one side with its end to the upper shoe 2 by means of a velcro tape 15.

Fig. 5 and 6 show a filler means 9 that is for instance a hollow chamber which can be filled with air, liquid or solid medium which can be removed by arranging a hole in the wall of the chamber. The solid medium here may be an elongate cord which can be pulled out of the chamber via the opening. It is likewise possible within the scope of the invention to remove the filler means 9 in its entirety if it is fastened by means of velcro tape 15 to the inner edge of the counter.

Fig. 7 shows a last which is suitable for manufacturing a shoe according to any of the foregoing figures 1-4. The last of fig. 7 consists of a nose part 20 and a heel part 21 in addition to a heel shank 22.

According to the invention the rear part 23 of the heel shank 22 is displaced stepwise in the direction of the nose part 20 relative to the rear part 24 of the heel part 21, wherein the recessing 25 lies at a height which will be situated under the tubular edge part 9 of the shoe to be made. The length of the pull element 12 is herewith determined in simple manner, whereby a relation between the size of shoe and the scientifically established foot growth data can easily be preserved.

The invention is not limited to the above described embodiments. As stated, the shoe can have a construction other than that indicated in fig. 1-4. The pull element 12 does not for instance have to be wholly enclosed by an edge strip in order to form the tubular edge 9, but a thread construction can also be used.

The shown shoelaces or cords 12 may also be

replaced by straps.

The shoes as shown can likewise be used as a non-pair, that is, that in the case of varying foot length only one shoe is provided with the filler means 9 according to the invention and not the other.

heel shank is displaced stepwise in the direction of the nose part relative to the rear of the heel part.

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Claims

1. A shoe provided with a sole with a foot surface and an upper shoe with counter extending above the foot surface and connected to an edge of the sole and an edge part closing above the instep and the heel of the foot and bounding the instep opening of the shoe, **characterized in that** the edge part of the instep opening supported by the counter is provided at least on the heel side with removable filler means to reduce the instep opening, this such that the rear portion of the edge part of the instep opening is displaced relative to the sole in the direction of the front part of the shoe. 10 15 20
2. A shoe as claimed in claim 1, **characterized in that** the filler means is embodied as a tubular edge portion. 25
3. A shoe as claimed in claims 1 and 2, **characterized in that** the tubular edge portion is provided with a flexible pull element of a predetermined length shorter than that of the periphery of the counter and both ends of the pull element are fastened to the upper shoe close to the front part of the edge part of the instep opening facing the front part of the shoe. 30 35
4. A shoe as claimed in claims 1-3, **characterized in that** the guide means are formed by strip folded to a tube, the lengthwise edges of which are fixed to the shoe, for example by a stitched seam. 40
5. A shoe as claimed in claims 1-4, **characterized in that** the tubular edge strip is thickened by means of a cushion-like filling. 45
6. A shoe as claimed in any of the foregoing claims, **characterized in that** the or each pull element is fastened releasably on at least one side to the shoe. 50
7. A shoe as claimed in claim 1, **characterized in that** the filler means is embodied as a solid elongate body provided with an adhering side, for example velcro tape. 55
8. A last suitable for manufacturing a shoe as claimed in any of the foregoing claims consisting of a nose part, heel part and heel shank placed thereon, **characterized in that** the rear part of the

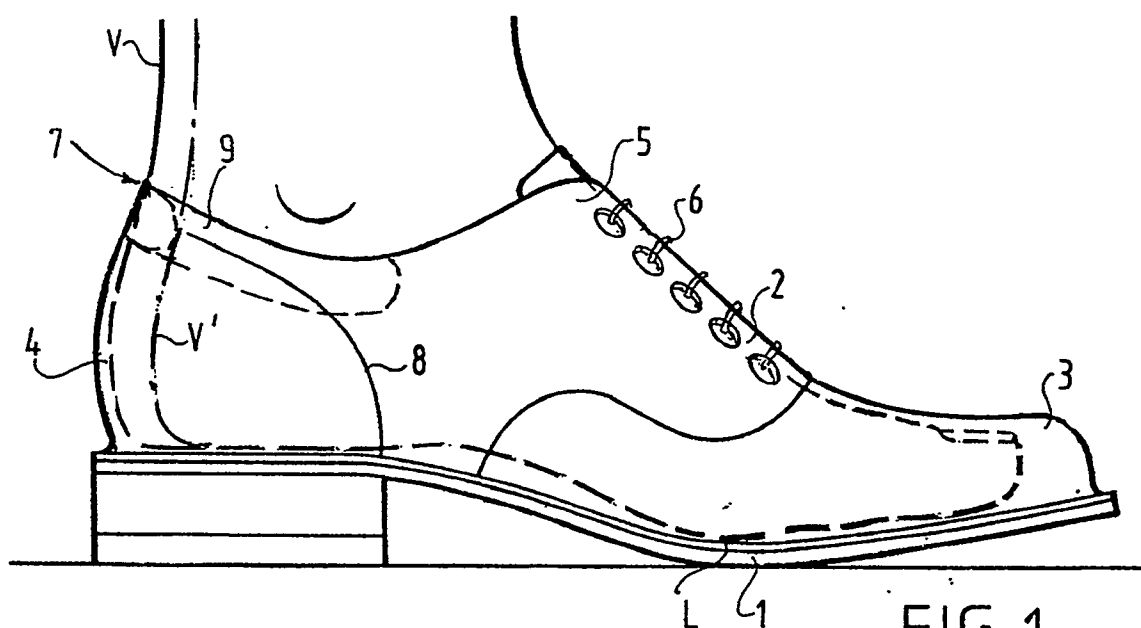


FIG. 1

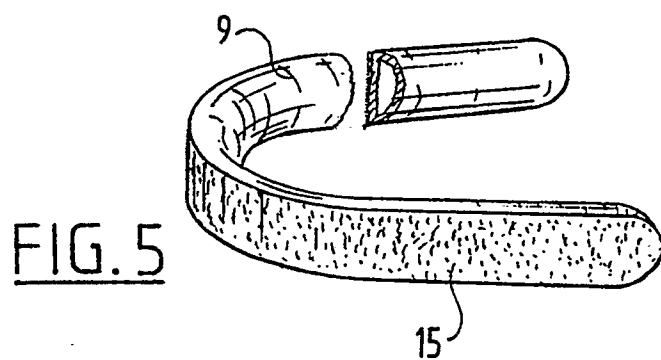


FIG. 5

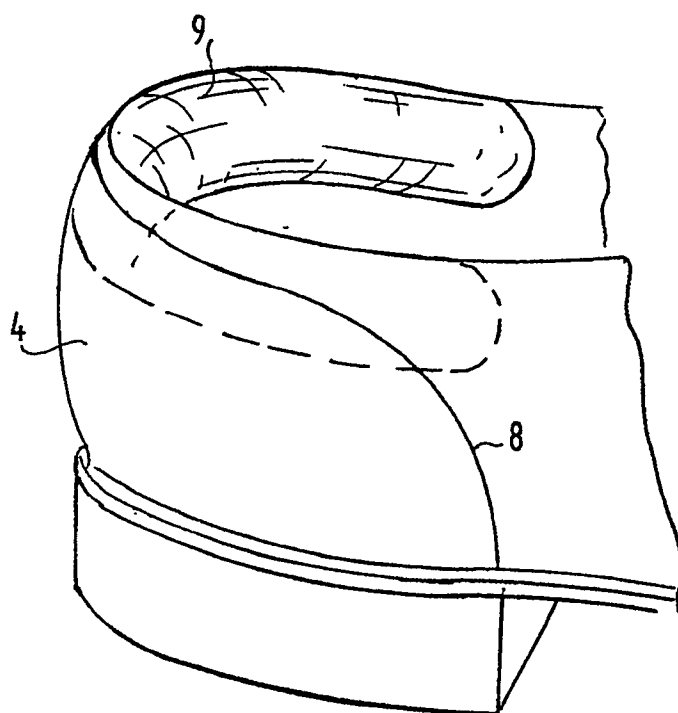


FIG. 6

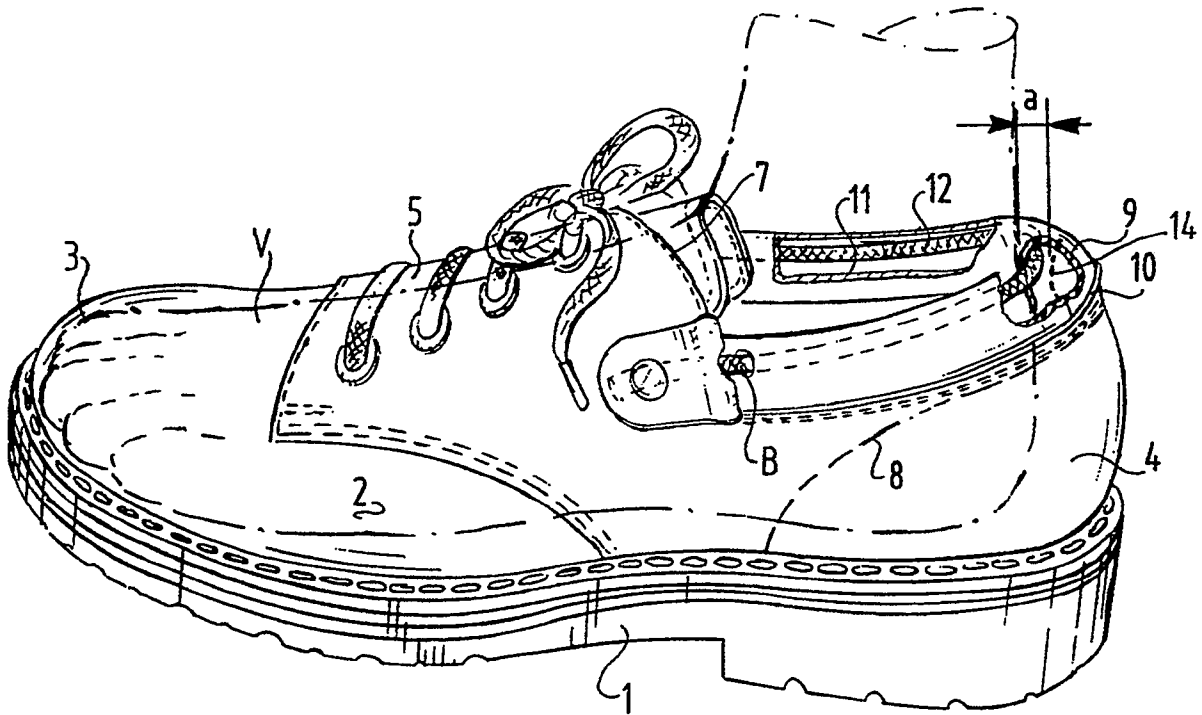


FIG. 2

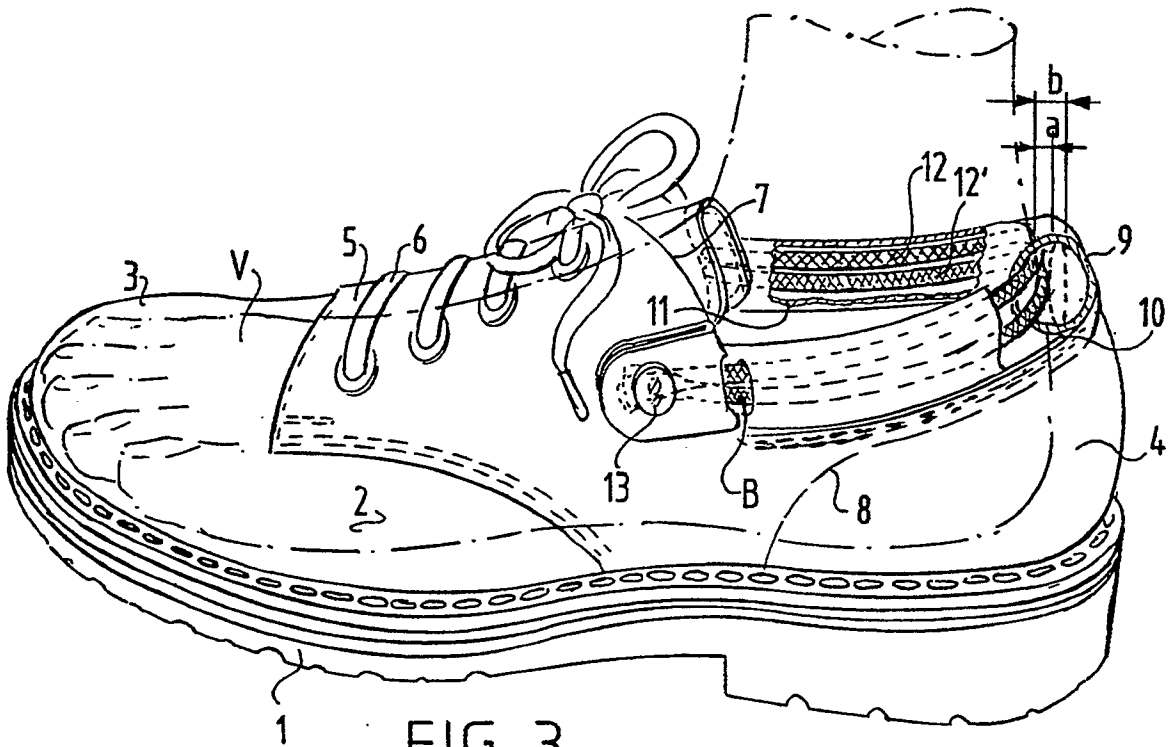


FIG. 3

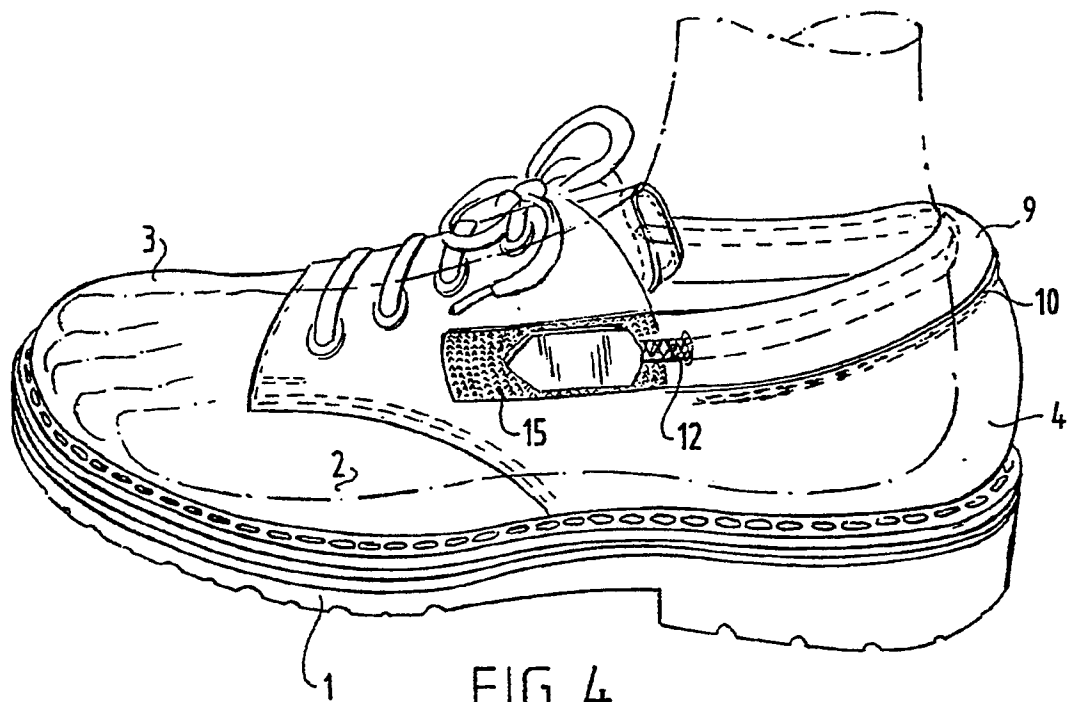


FIG. 4

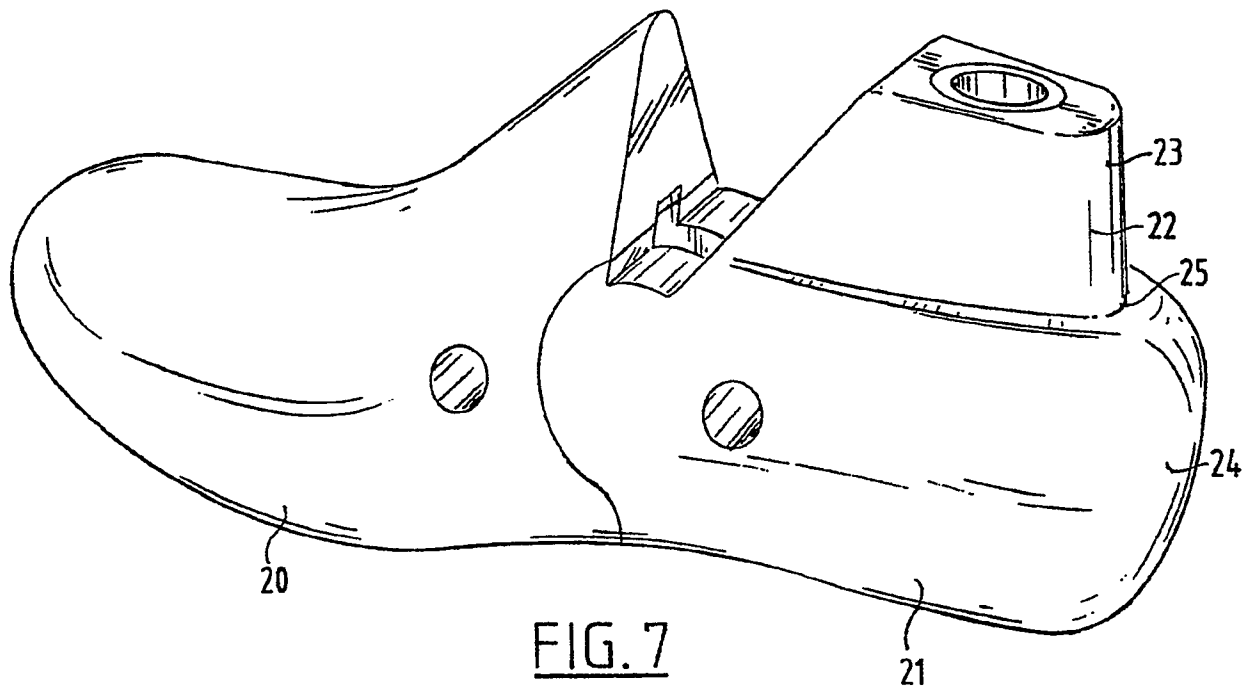


FIG. 7