



(11)

EP 2 818 062 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
31.12.2014 Bulletin 2015/01

(51) Int Cl.:
A41B 11/02 ^(2006.01) **A43B 3/24** ^(2006.01)
A43B 3/30 ^(2006.01) **A43B 13/14** ^(2006.01)
A43B 23/08 ^(2006.01)

(21) Application number: **14173605.8**

(22) Date of filing: **24.06.2014**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME

(71) Applicant: **C & J CLARK INTERNATIONAL
LIMITED**
Street Somerset, BA 16 0EQ (GB)

(72) Inventor: **Towns, Chris**
Taunton, Somerset TA3 7SA (GB)

(30) Priority: **27.06.2013 GB 201311413**

(74) Representative: **Marles, Alan David et al**
Stevens Hewlett & Perkins
1 St Augustine's Place
Bristol BS1 4UD (GB)

(54) **An article of footwear**

(57) There is provided an article of footwear 10 comprising a sock 11 having a resilient heel member 14 attached to the outside thereof. Also attached to the outside

of the sock 11 is a forward member 13 which is spaced from the heel member 14 and provides a rear opening pocket for receiving therein the toe region of a foot.

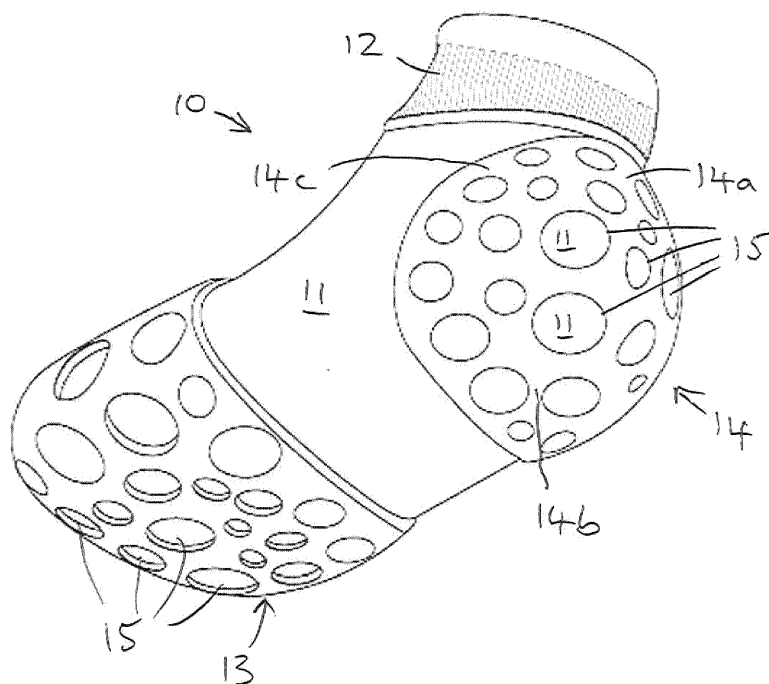


FIGURE 2

Description

[0001] The present invention relates to articles of footwear.

[0002] It is known that it can sometimes be difficult to put socks on a baby or an infant and that conventional socks offer little in protection for the wearer's foot, in particular the toe area.

[0003] According to the present invention there is provided an article of footwear comprising a sock having secured to the outside thereof a resilient heel member and a forward member, spaced from the heel member, for receiving the toes of a wearer, the forward portion being in the form of a rear-opening pocket surrounding the forward toe region of the wearer, wherein the forward member and the heel member are separate from each other and are connected only by means of the sock.

[0004] Preferably the sock is secured to the forward portion only at or towards the rearmost margin of the rear-opening forward portion with the forwardmost part of the sock stopping short of the forwardmost inside surface of the forward portion. In preferred arrangements the securing of the sock is continuous around the circumference of the rearmost margin.

[0005] Conveniently the heel member and/or the forward member are formed from natural or synthetic rubber. In some arrangements the heel member and/or the forward member are formed from a polyolefin or a polypropylene/SEBS mixture.

[0006] It is a preferred feature that the heel member and/or the forward member are provided with a number of holes which partially expose the sock and normally the sock has an elasticated cuff portion above the heel member. Ideally, the sock is made from a textile material.

[0007] Preferably the heel member is in the form of a concave heel counter having rear, sole and left and right regions. Ideally the concave heel counter can be selectively inverted by an over-centre action into a convex condition to aid foot insertion and resiliently returned to its concave condition to aid foot retention.

[0008] Another preferred feature is that the heel member is shaped so as to be engageable with the forward member to define a volume in which the sock can be accommodated when not in use. In one particular embodiment the combined shape of the heel member when engaged with the forward member is substantially that of an egg.

[0009] Embodiments of the present invention will now be described in more detail. The description refers to the accompanying drawings in which:

Figure 1 is a front perspective view from above of an article of footwear according to the present invention, Figure 2 is a rear perspective view from below of the article of footwear shown in figure 1, Figures 3a to 3f are front perspective views showing the article of footwear of figure 1 being applied to the foot of a wearer,

Figure 4 shows an alternative embodiment which has been compacted to form an egg shape, and Figure 5 is a vertical lengthwise section through an embodiment of an article of footwear according to the present invention.

[0010] In figures 1 to 3 there is shown an article of footwear 10 in the form of a sock for a baby/infant although it will be appreciated that the present invention is not size limited. The sock 10 could be any size so that it can be used by anyone although it may have a more particular use for a baby/infant or less able bodied people.

[0011] The sock 10 has a textile sock member 11 which extends from a toe area to an elasticated cuff 12 which is typically ankle height but could be higher. The textile sock member 11 has a degree of elasticity as is common with conventional socks but in alternative arrangements may be made from a non-textile material having suitable flexibility and elasticity. The toe area of the textile sock member 11 is provided with and is secured to an external forward member 13 which is made from a resilient material such as natural or synthetic rubber. The forward member 13 is rigid enough to maintain a pocket shape which opens rearwardly and which is lined by the area of the textile sock member 11. The forward member is however resiliently flexible to accommodate foot movement and also provides protection for the toes of the wearer. The pocket shape of the forward member 13 generally encloses the forward, top, bottom and side areas so as to surround and protect the toe region of the wearer when the sock is being worn.

[0012] The heel area of the textile sock member 11 is provided with and is secured to an external heel member 14 which is made from a resilient material such as natural or synthetic rubber and which is spaced from the forward member 13. The heel member 14 is in the form of a concave heel counter which has rear, sole, left and right side regions 14a to 14d to give support and protection to these aspects of the heel. The heel member 14 also aids retention of the sock on the foot. The heel member 14 and the forward member are separate from each other and are connected to each other only by means of the sock 11.

[0013] The forward member 13 and the heel member 14 are shown with optional holes 15 which extend through the thickness to expose the textile sock member 11. These holes aid ventilation and can improve the flexibility of the forward and heel members whilst still enabling the forward member 13 to surround and protect the toe region of the wearer. The size, shape and location of the holes is a matter of design choice.

[0014] One preferred method of application of the sock 10 to the foot 20 of the wearer is shown in stages in figures 3a to 3f. Firstly the cuff 12 of the sock member 11 is rolled or folded downwardly over the concave heel member 14 which is resiliently deformed by an over-centre inversion action to become convex. The rolling/folding action is continued between the heel member 14 and the forward member 13 until the sock member 11 overlaps

the rear edge of the forward member 13 as indicated in figure 3c. In this condition, a rear-facing pocket, lined by the textile sock member 11, is provided by the forward member 13.

[0015] Figure 3d shows the toe region of the foot being inserted into the rear-facing pocket. The form of the forward member 13 keeps the pocket open whereas in a conventional sock the textile material is not capable of holding a pocket shape. The open pocket easily receives the wearer's foot 20 even if the wearer's toes are moving, as is often the case with babies/infants.

[0016] The textile sock member 11 is then rolled/folded back along the foot 20 and over the heel 21 of the wearer's foot. The heel member 14 then resiliently moves back, perhaps with a gentle over-centre snap action, to its concave condition around the heel of the wearer. The cuff 12 is then unrolled/unfolded up over the ankle 22 of the wearer as illustrated in figure 3f. It will be understood that the heel member 14 assists the retention of the sock 10 on the foot 20, as does the elasticated cuff 12.

[0017] It will be appreciated that the heel member 14 and the forward member 13 provide protection for vulnerable areas of the foot 20 and provide good wear surfaces as the baby/infant starts to kick its feet when laid down or starts to crawl. The textile sock member 11 is useful when it is not desirable or possible for the wearer to wear conventional pram boots or crawling shoes. Also, the somewhat elasticated nature of the textile sock member gives a degree of flexibility over the length whereas a conventional shoe or boot is of fixed length and needs to be replaced as the wearer's feet grow.

[0018] It will also be apparent to the skilled reader that the precise shape and size of the forward and heel members can be varied. Also the provision of the holes is an optional feature or alternatively the holes could be of different shape or size or location.

[0019] In some arrangements, the heel member and the forward member could be shaped so as to engage to form an appealing shape. For babies/infants this shape could be an egg 30 as shown in open and closed conditions in figure 4. The heel member and the forward member together form a volume in which the textile sock member 11 is accommodated. Other shapes would of course be possible.

[0020] The heel member 14 could be designed, possibly with some concentric circular formations, preferably centred on a lower rear point of the heel member midway between the sides, such that the heel member can move between its concave and convex shapes after it reaches an 'over centre' condition where it snaps gently between its in-use and folded orientations. This could aid use of the sock 10.

[0021] Figure 5 illustrates an optional, preferred feature. The article of footwear 10 again has a textile, somewhat elastic sock member 11, an external forward member 13 and an external heel member 14. In this embodiment, the external heel member 14 is secured to the sock member over the entire concave inward surface 35

of the heel member 14. In the forward member 13, however, the sock member 11 is secured perhaps with adhesive or heat bonding and the like only around the circumference of the forward member 36, ideally but not essentially at a rear margin adjacent its free, rearward edge 37 with the natural unstressed condition of the sock member 11 being spaced from and stopping short of the forwardmost inside surface 38 of the forward member 13. When the foot of the wearer is inserted into the article of footwear, this spacing at and around the toe end gives some room for foot growth. This room for growth also tends, however, not to allow the wearer's foot to move toward and into contact with the inside surface 38 because the elasticity of the sock member acts in a direction to prevent this. The sock member allows toe movement and provides a shock-absorbing, trampoline effect by virtue of its elasticity.

[0022] Although the sock member is attached to the forward member 13 around the circumference of the foot, the attachment need not be continuous around the circumference and sufficient effect could be obtained by attaching the sock member to the forward member at spaced locations around the circumference of the pocket provided by the forward member, preferably at the rear margin adjacent the rearward edge 37.

Claims

1. An article of footwear comprising a sock having secured to the outside thereof a resilient heel member and a forward member, spaced from the heel member, for receiving the toes of a wearer, the forward portion being in the form of a rear-opening pocket for surrounding the forward toe region of the wearer, wherein the forward member and the heel member are separate from each other and are connected only by means of the sock.
2. An article of footwear as claimed in claim 1 wherein the sock is secured to the forward portion only at or towards the rearmost margin of the rear-opening forward portion with the forwardmost part of the sock stopping short of the forwardmost inside surface of the forward portion.
3. An article of footwear as claimed in claim 2 wherein the securement of the sock is continuous around the circumference of the rearmost margin.
4. An article of footwear as claimed in any one of claims 1 to 3 wherein the forward portion is formed from a resilient material.
5. An article of footwear as claimed in any one of claims 1 to 4 wherein the heel member and/or the forward member are formed from natural or synthetic rubber.

6. An article of footwear as claimed in claim 5 wherein the heel member and/or the forward member are formed from a polyolefin or a polypropylene/SEBS mixture. 5
7. An article of footwear as claimed in any one of claims 1 to 6 wherein the heel member and/or the forward member are provided with a number of holes which partially expose the sock. 10
8. An article of footwear as claimed in any one of claims 1 to 7 wherein the sock has an elasticated cuff portion above the heel member. 15
9. An article of footwear as claimed in any one of claims 1 to 8 wherein the heel member is in the form of a concave heel counter having rear, sole and left and right regions. 20
10. An article of footwear as claimed in claim 9 wherein the concave heel counter can be selectively inverted by an over-centre action into a convex condition to aid foot insertion and resiliently returned to its concave condition to aid foot retention. 25
11. An article of footwear as claimed in any one of claims 1 to 10 wherein the heel member is shaped so as to be engageable with the forward member to define a volume in which the sock can be accommodated when not in use. 30
12. An article of footwear as claimed in claim 11 wherein the combined shape of the heel member when engaged with the forward member is substantially that of an egg. 35
13. An article of footwear as claimed in any one of claims 1 to 12 wherein the sock is made from a textile material. 40

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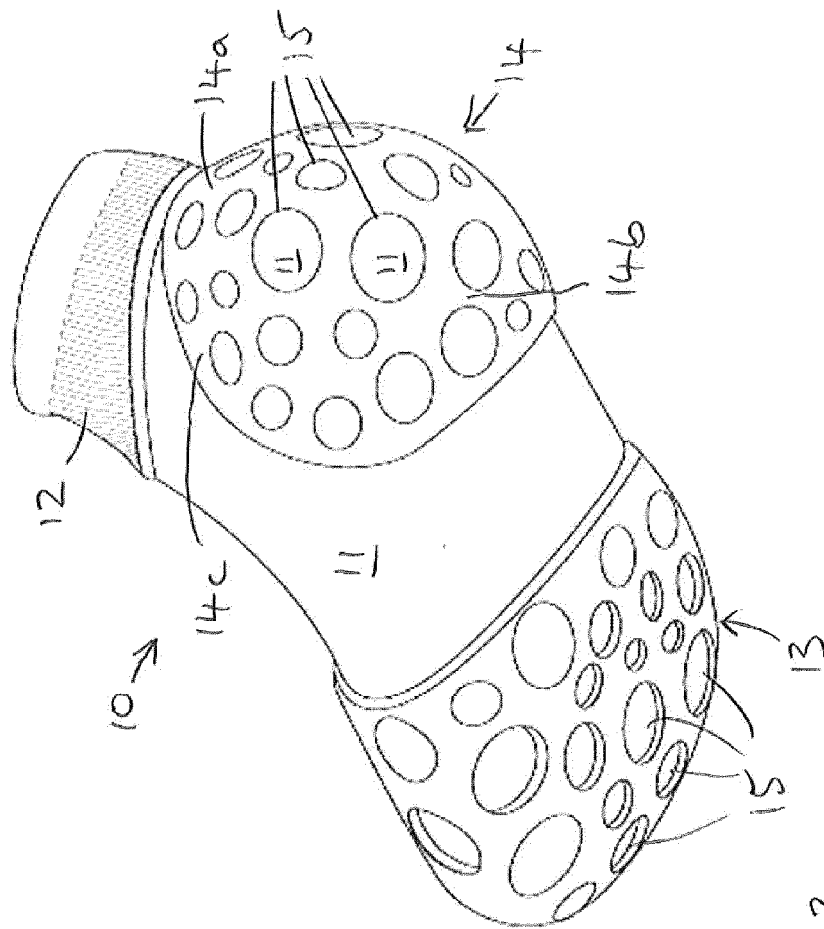


FIGURE 1

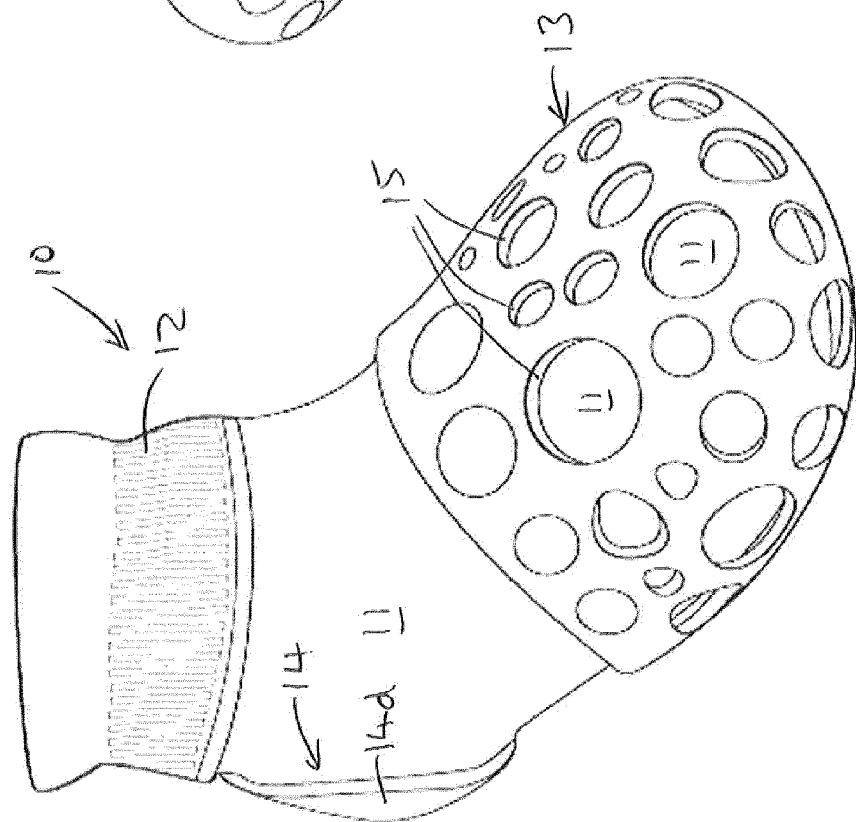


FIGURE 2

FIGURE 3c

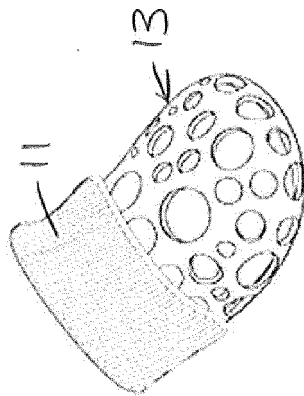


FIGURE 3b

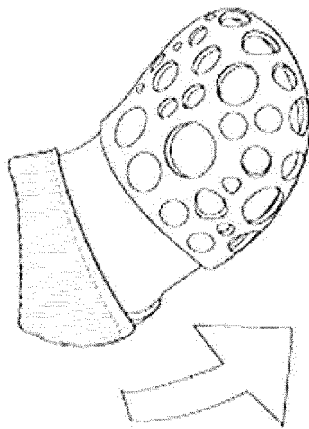


FIGURE 3a

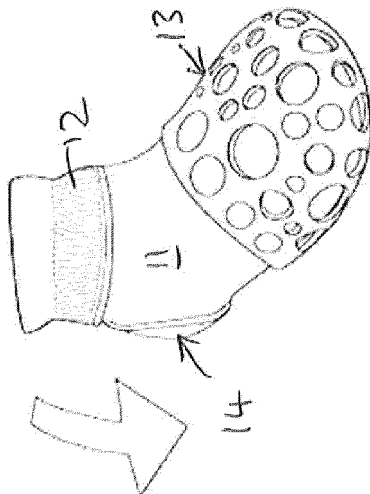


FIGURE 3f

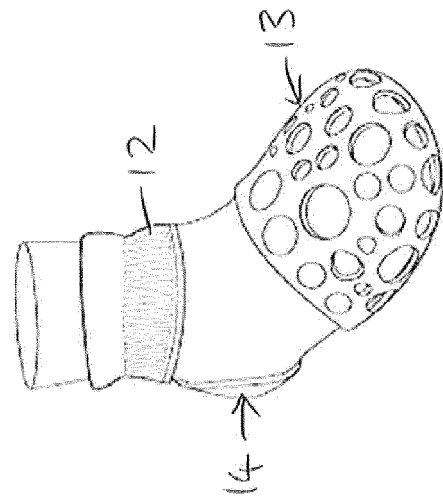


FIGURE 3e

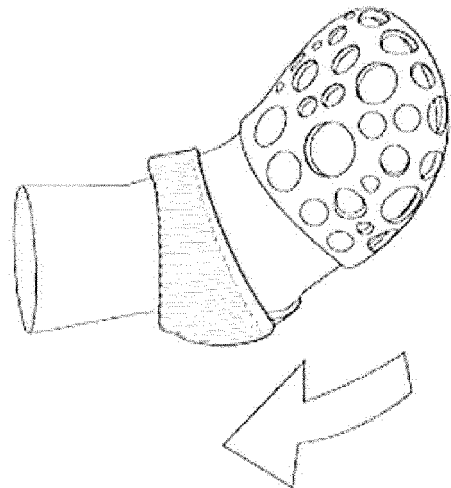
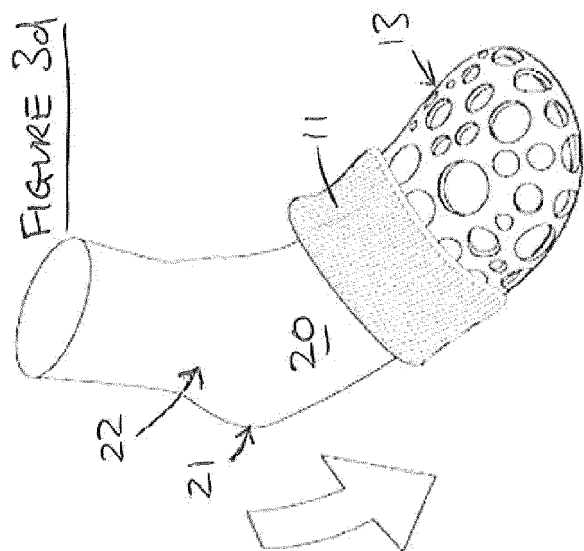


FIGURE 3d



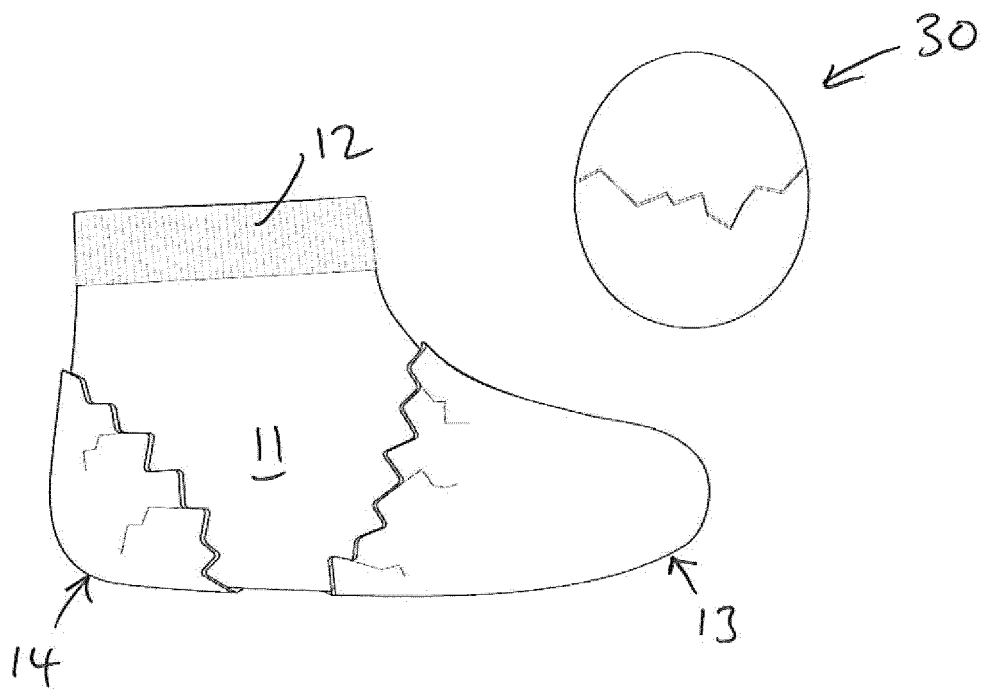


FIGURE 4

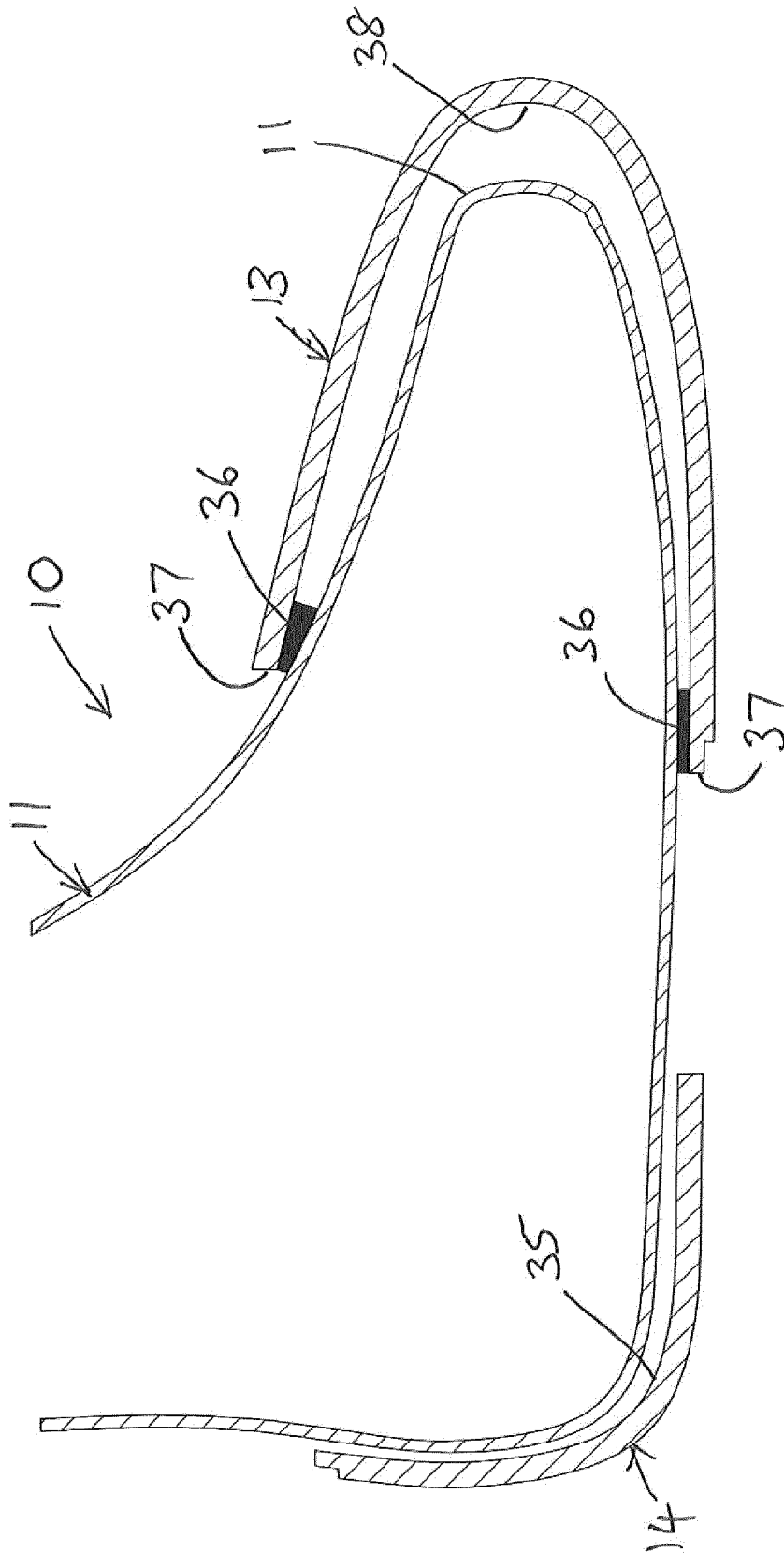


FIGURE 5



EUROPEAN SEARCH REPORT

 Application Number
 EP 14 17 3605

DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 October 2014	Examiner Williams, Mark
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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ANNEX TO THE EUROPEAN SEARCH REPORT
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