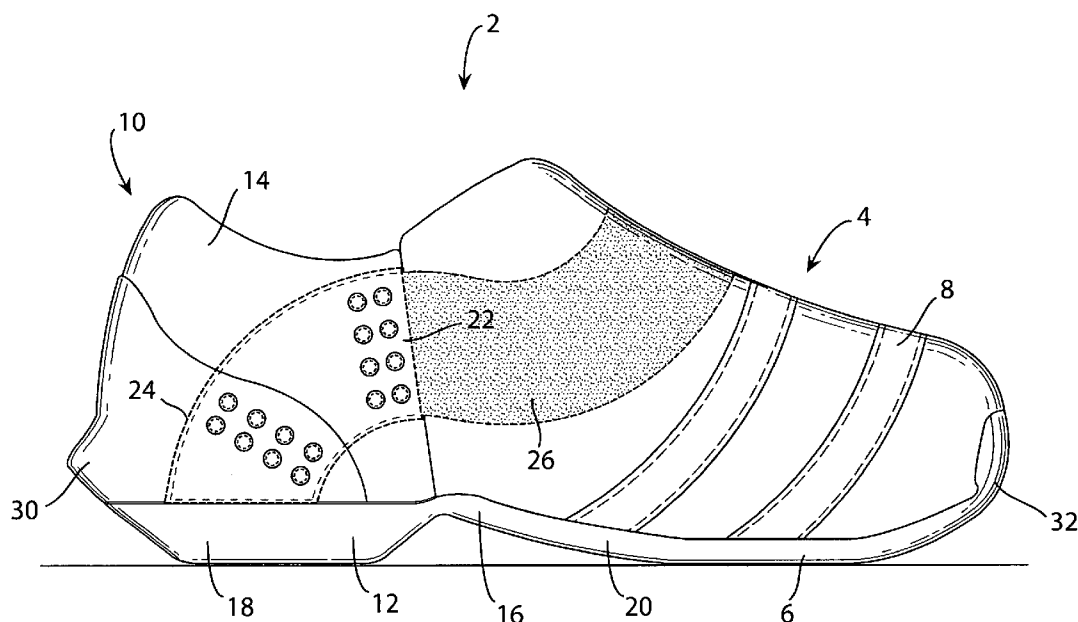




US 20150020416A1

(19) **United States**(12) **Patent Application Publication**
Wiens(10) **Pub. No.: US 2015/0020416 A1**(43) **Pub. Date: Jan. 22, 2015**(54) **SHOE**(71) Applicant: **Ryan Wiens**, Danville, CA (US)(72) Inventor: **Ryan Wiens**, Danville, CA (US)(21) Appl. No.: **13/944,879**(22) Filed: **Jul. 18, 2013****Publication Classification**(51) **Int. Cl.**
A43B 3/06 (2006.01)
A43B 23/02 (2006.01)(52) **U.S. Cl.**CPC **A43B 3/06** (2013.01); **A43B 23/0295**
(2013.01)USPC **36/102**; 36/83(57) **ABSTRACT**

A shoe has a coupling element extending between the front and rear portions of the shoe to maintain the shoe in a bent position. The shoe rests stably on the ground in the bent position so that the user may simply step into the shoe. The bent position is overcome by the user's bodyweight, which overcomes a locked position of the coupling element.



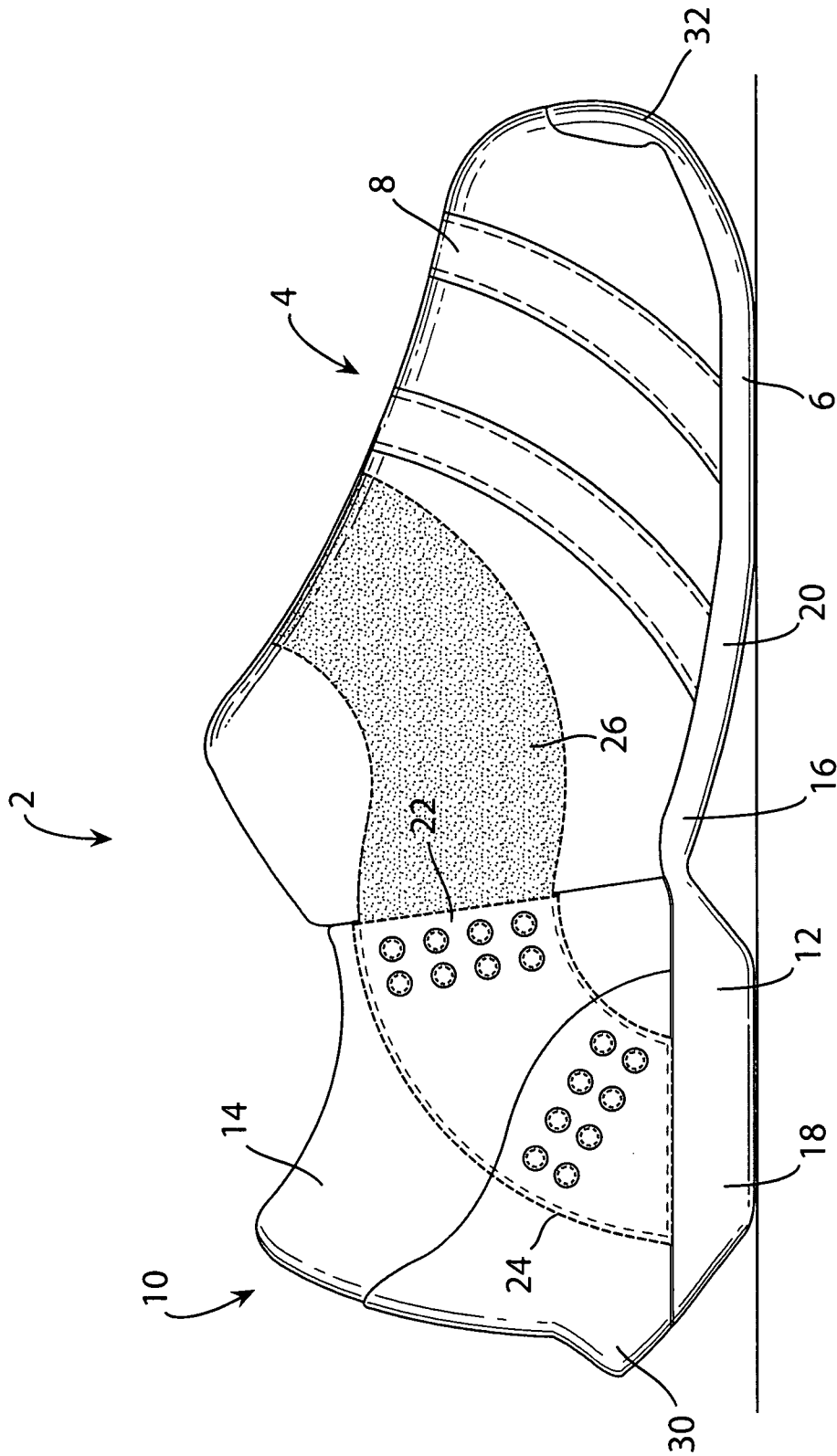


Fig. 1

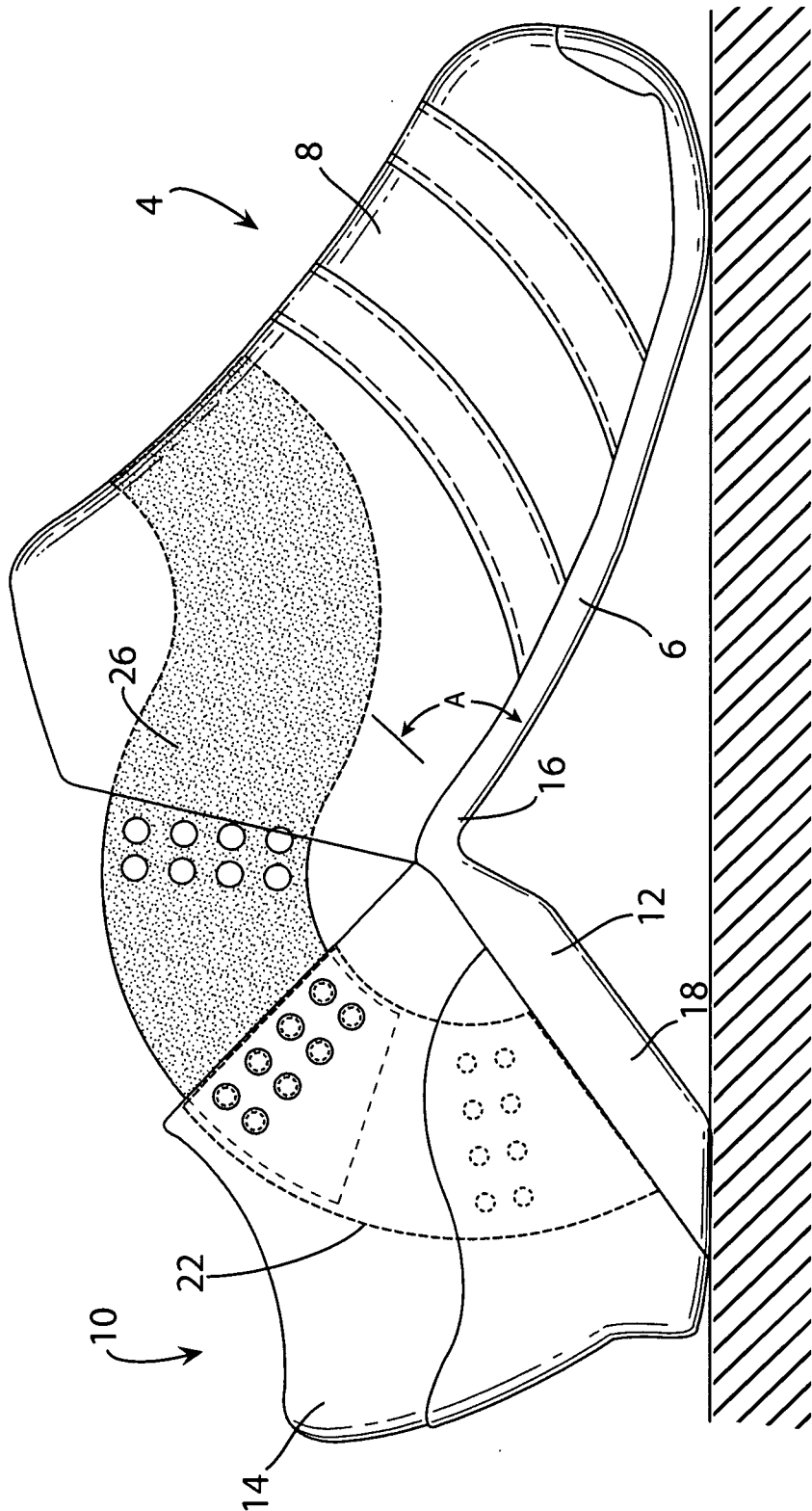
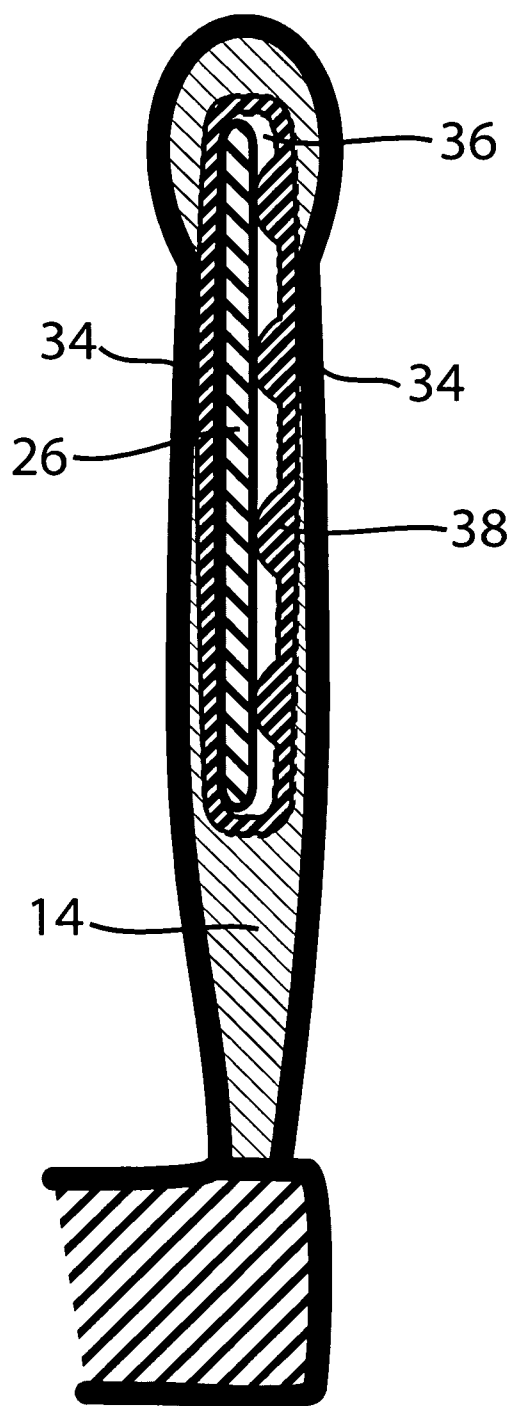
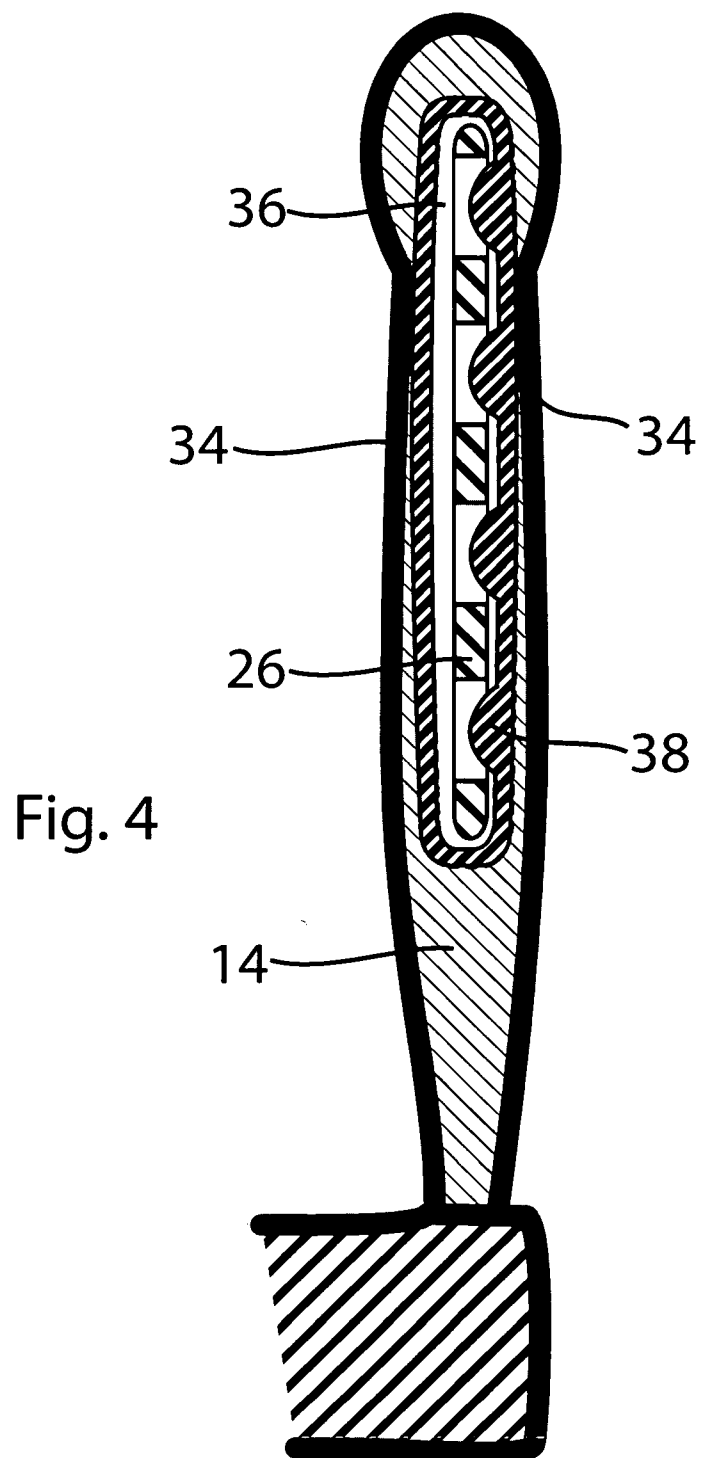


Fig. 2

Fig. 3





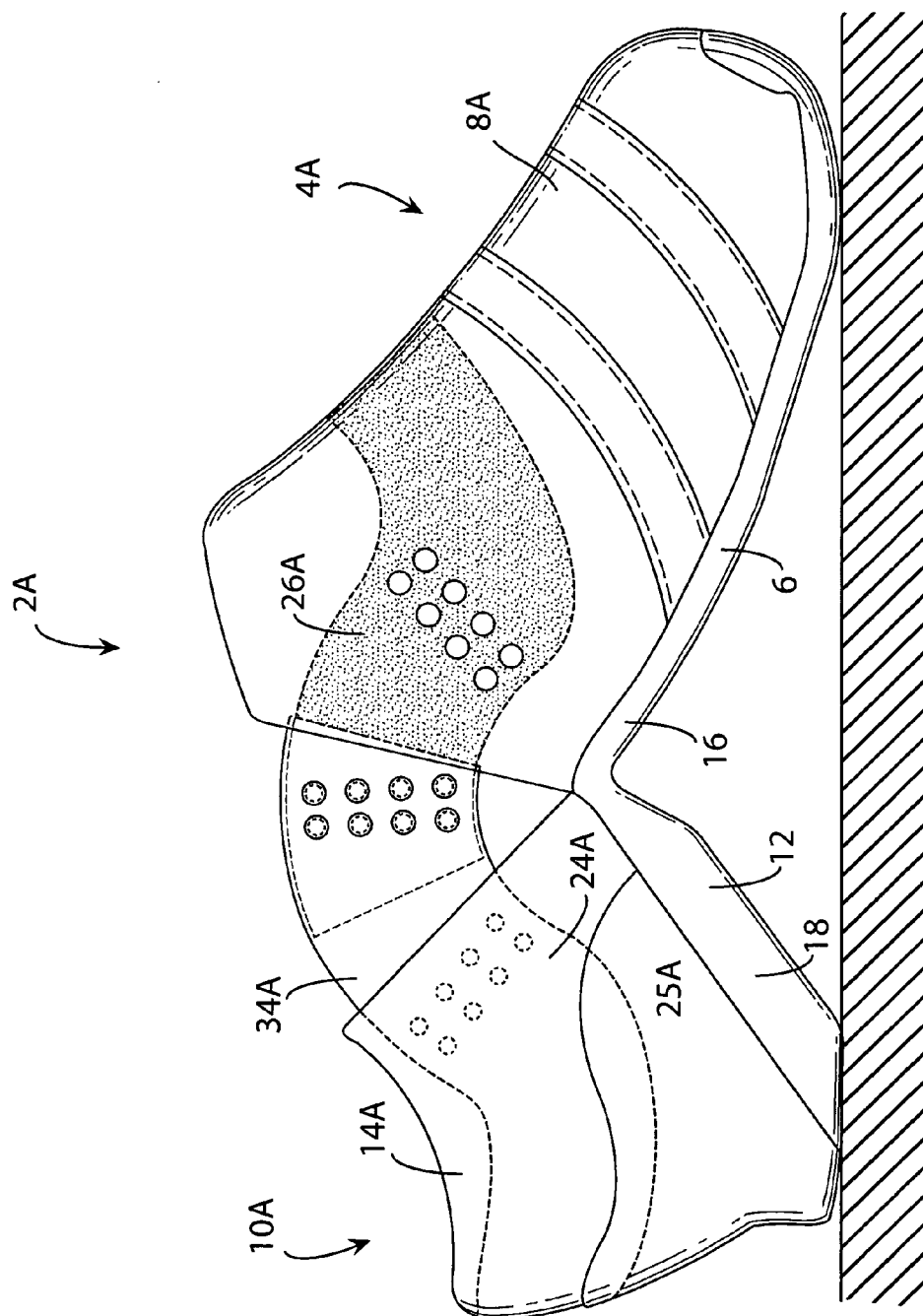


Fig. 5

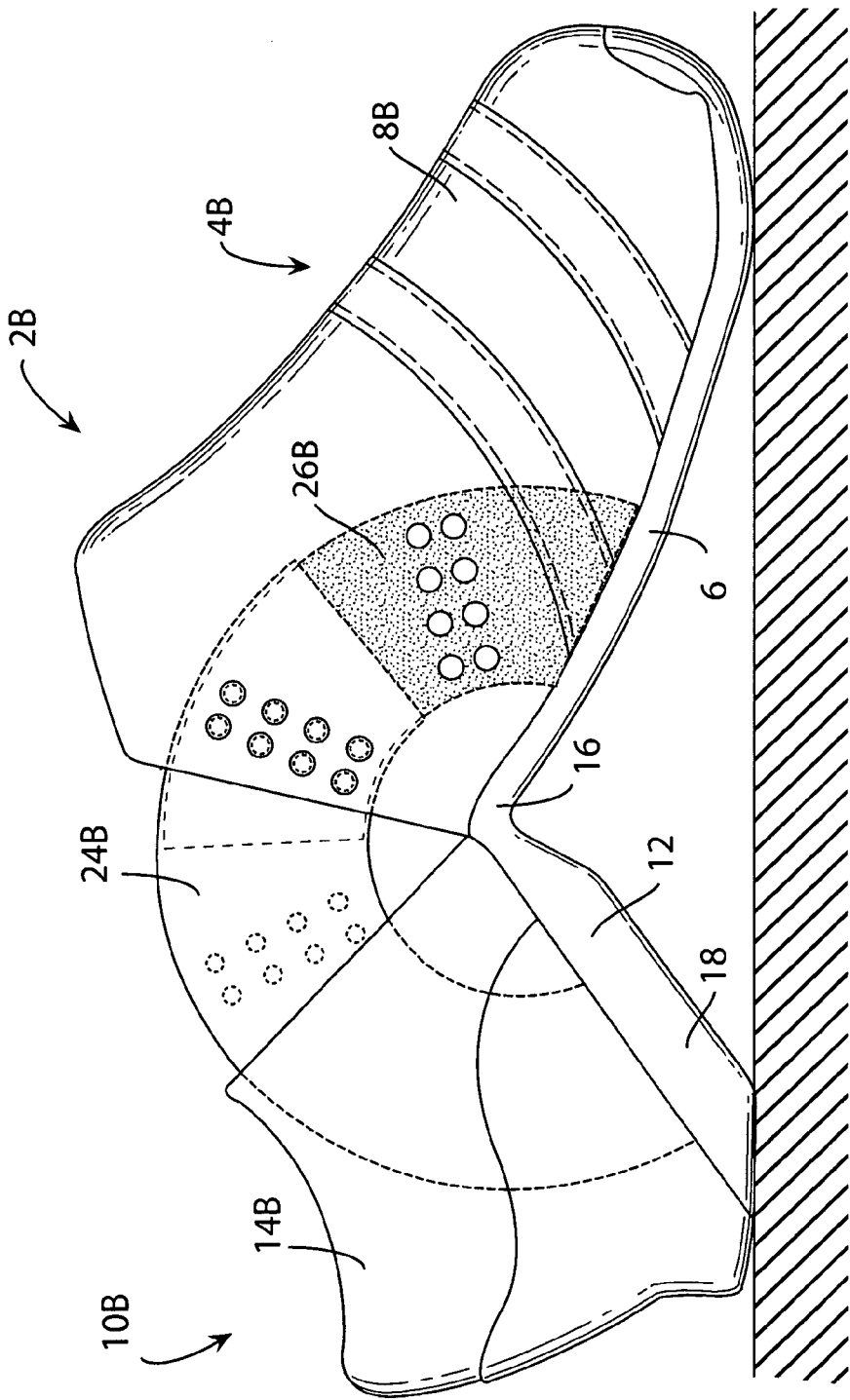


Fig. 6

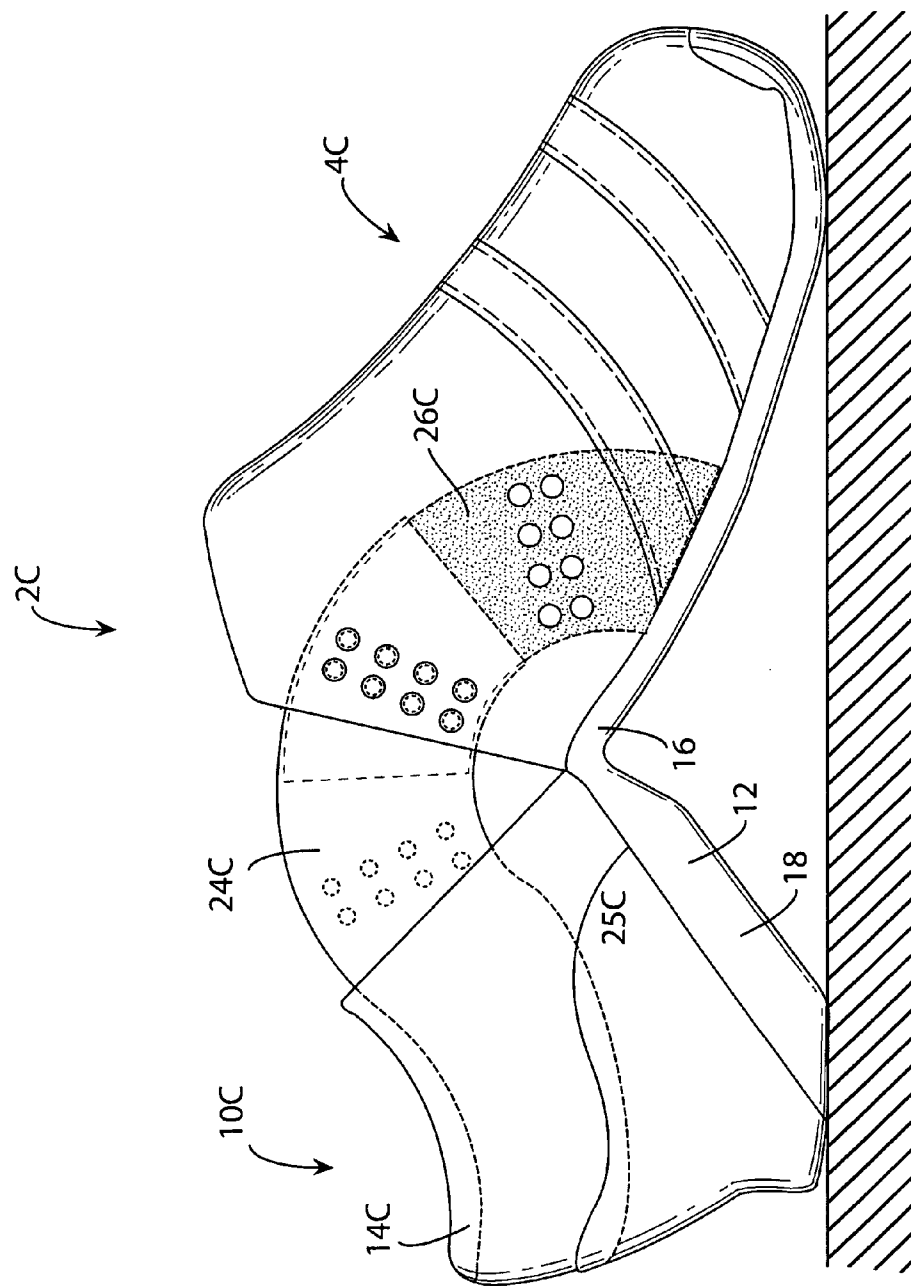


Fig. 7

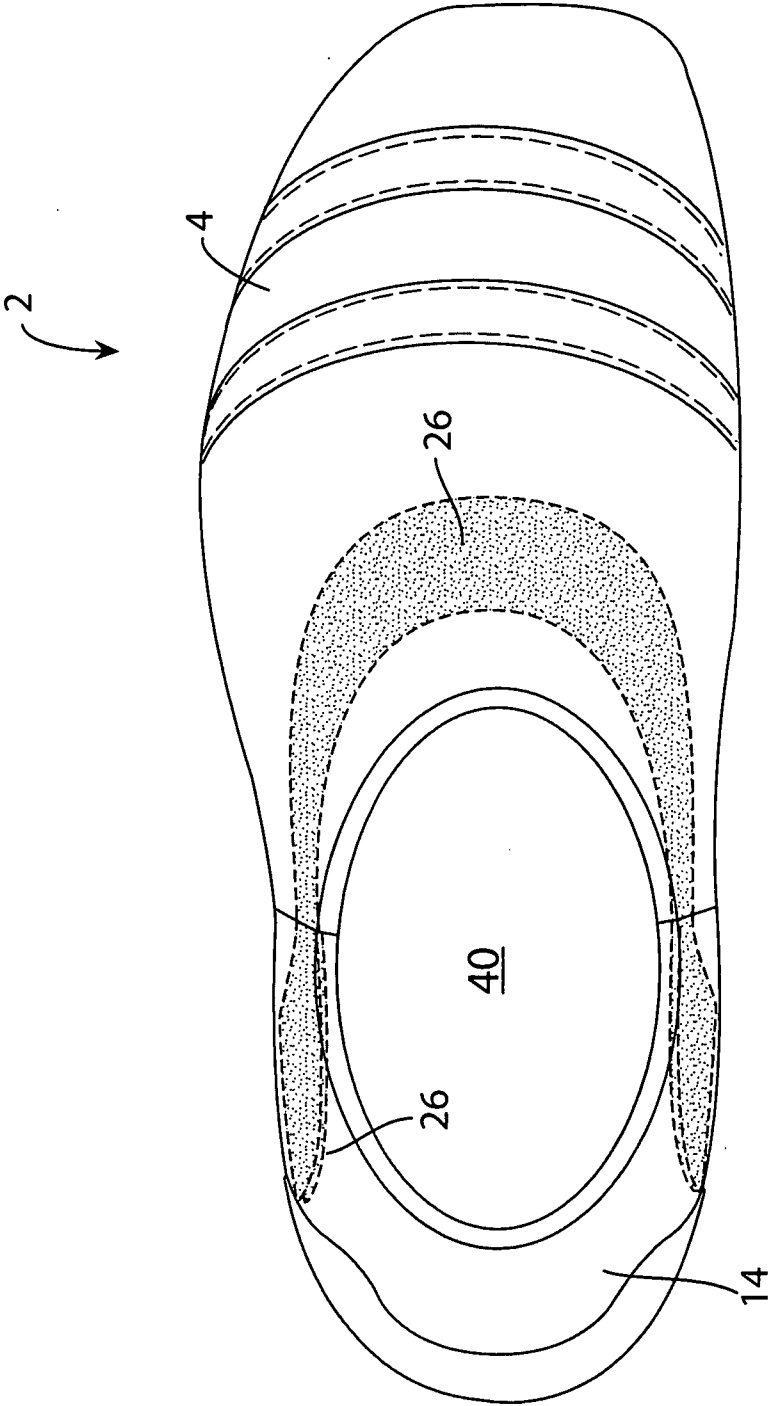
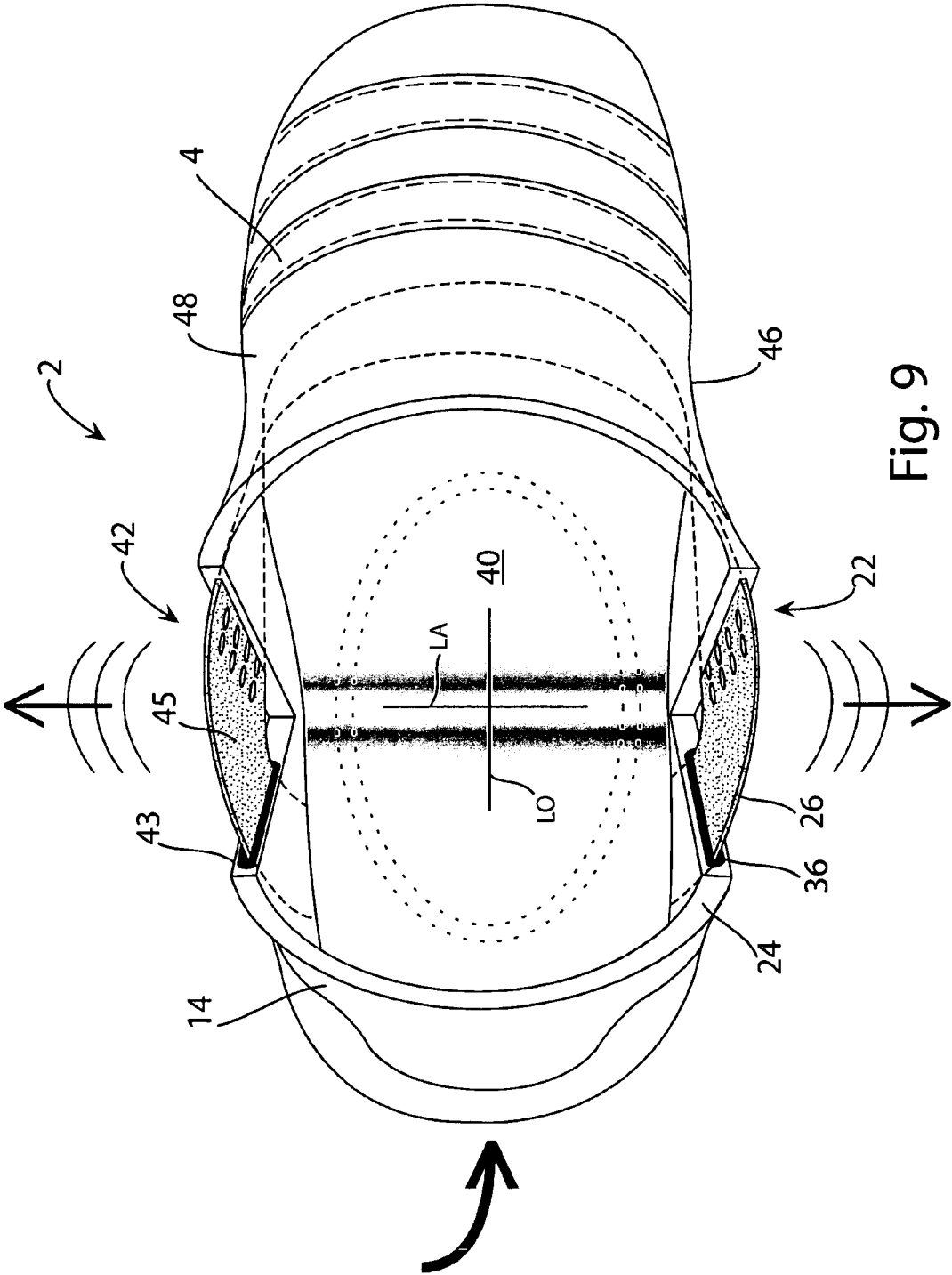


Fig. 8



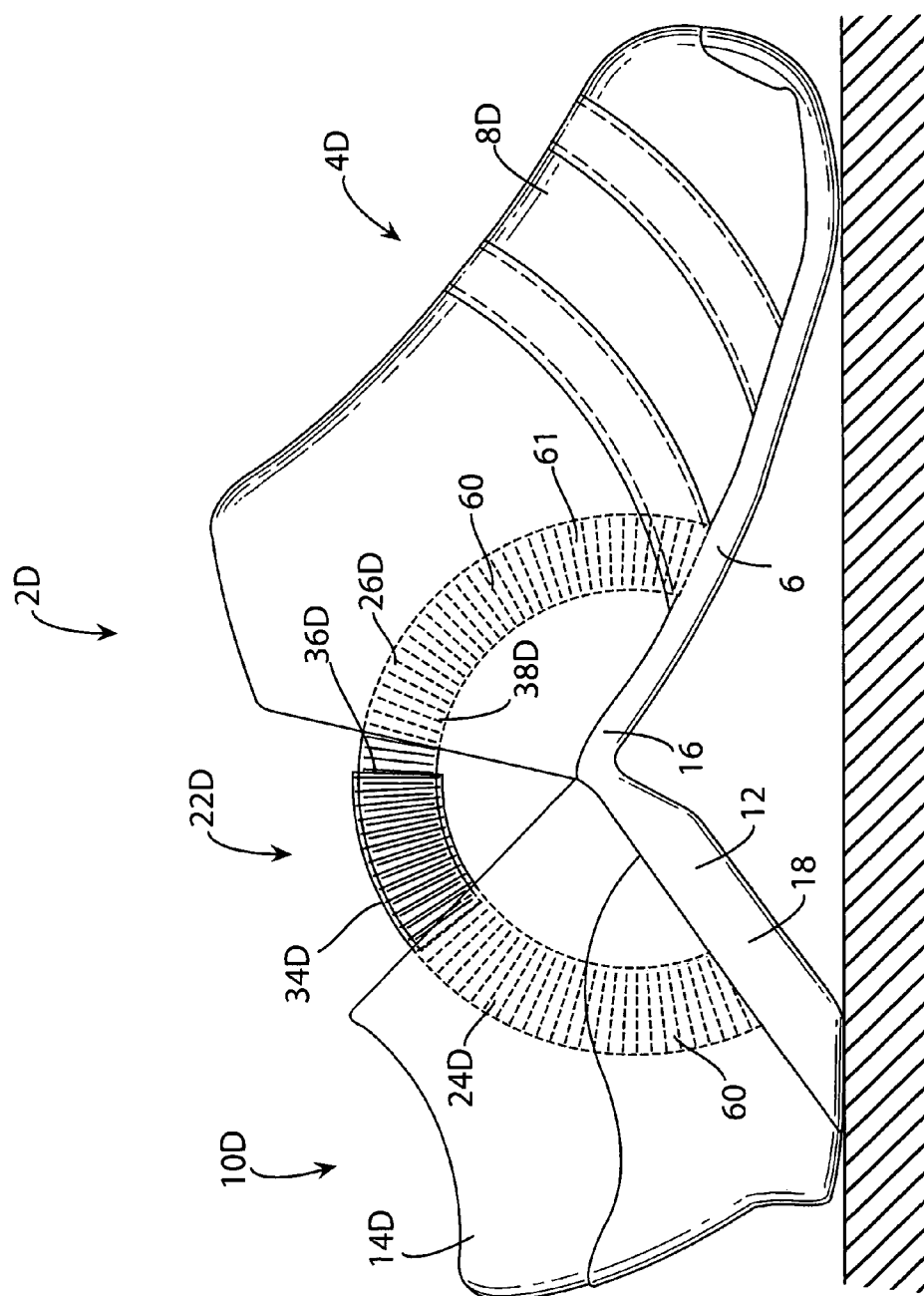


Fig. 10

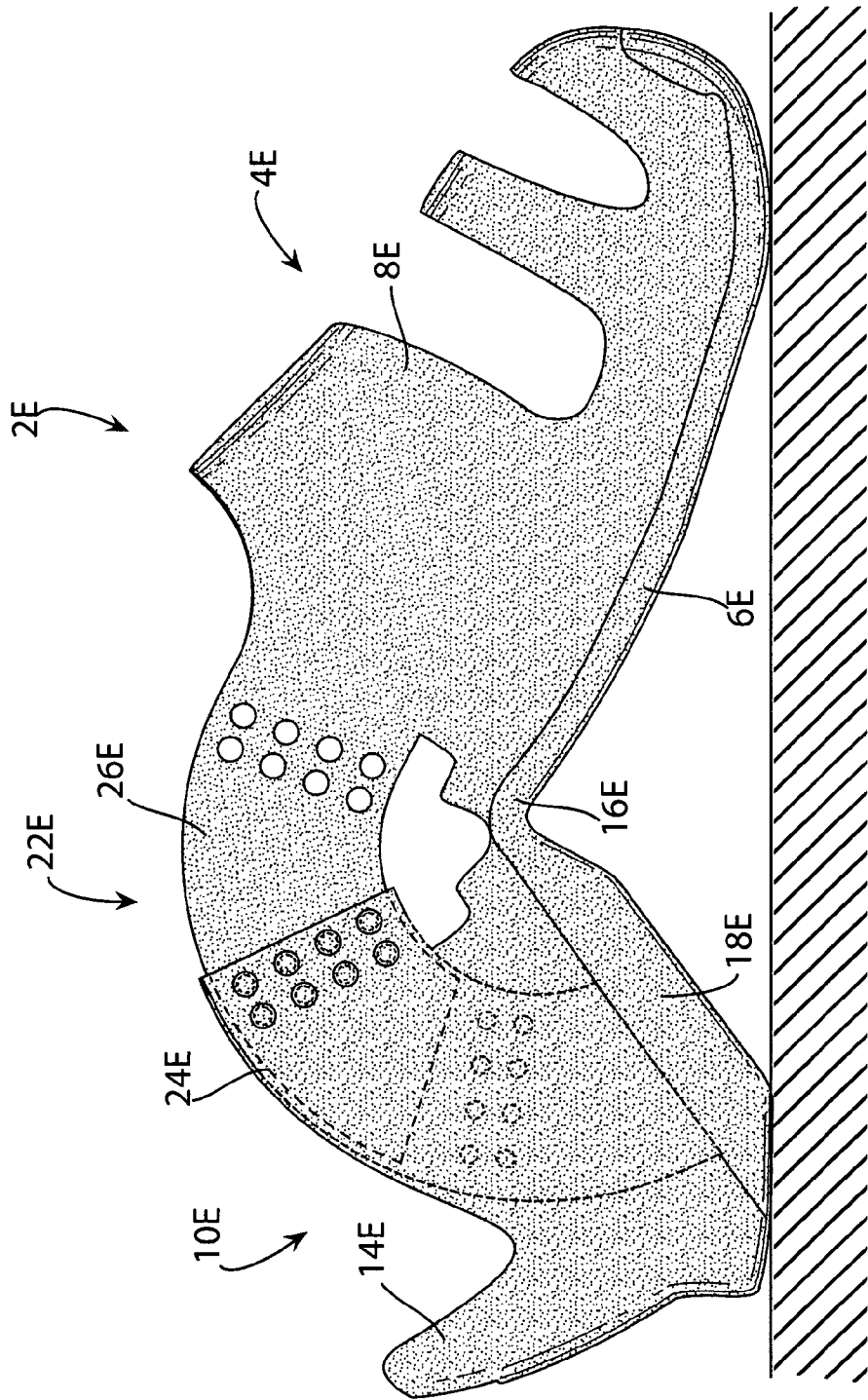


Fig. 11

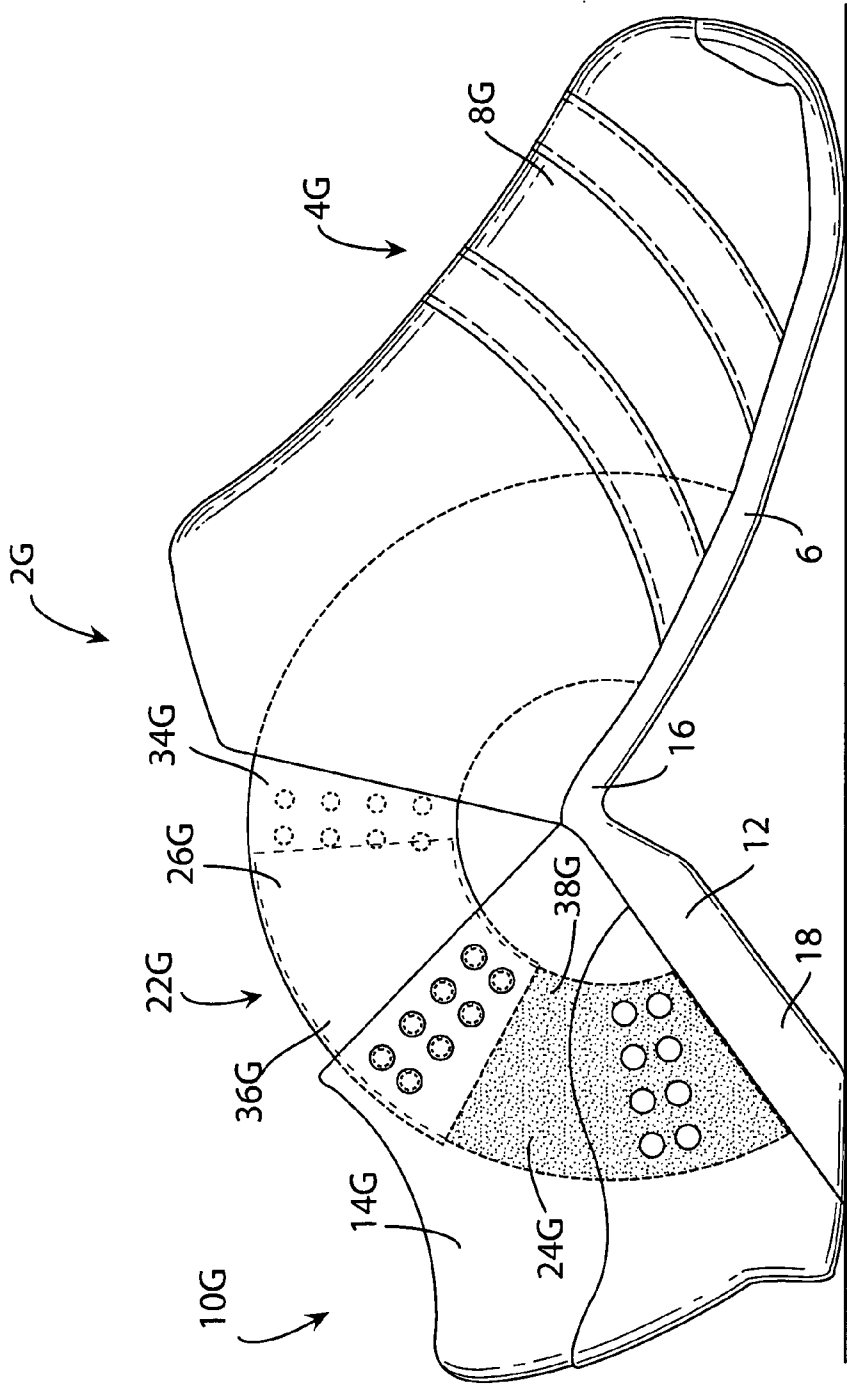


Fig. 12

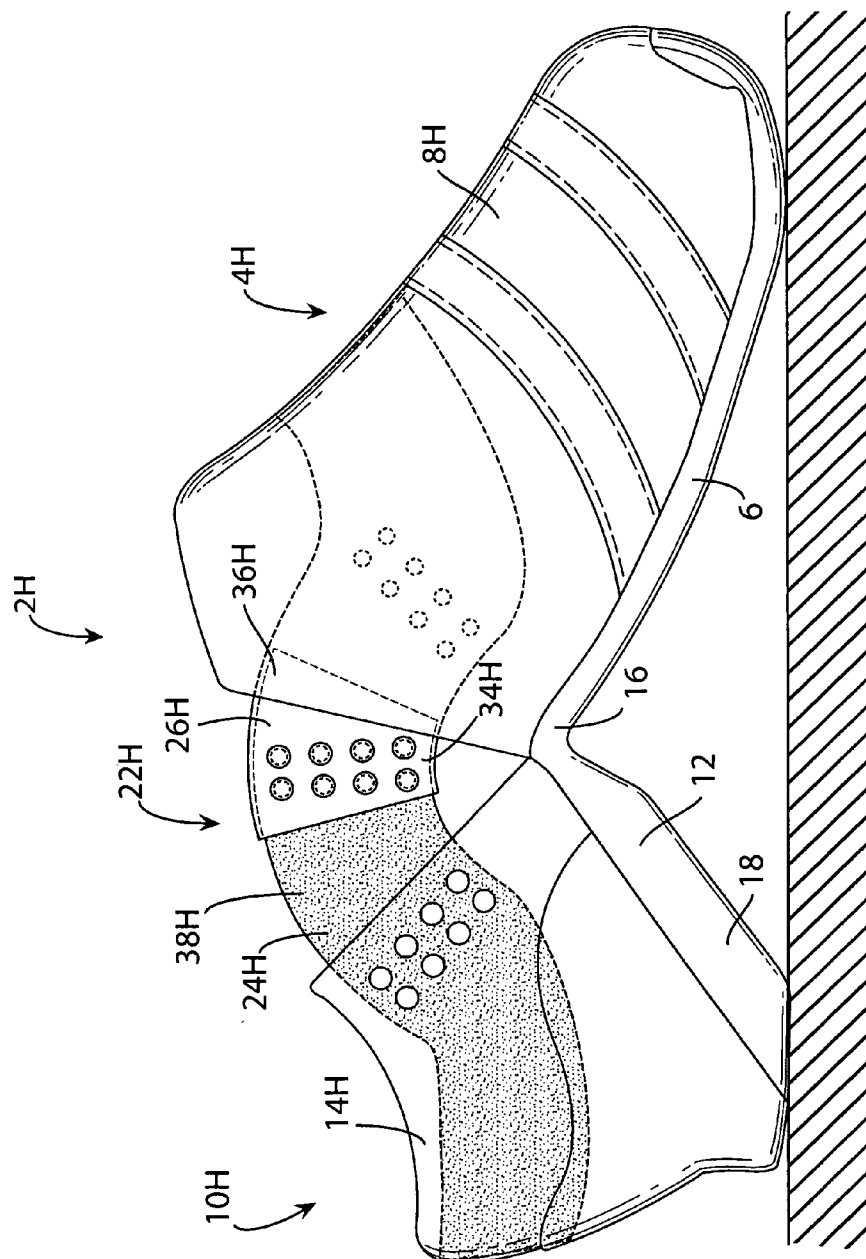


Fig. 13

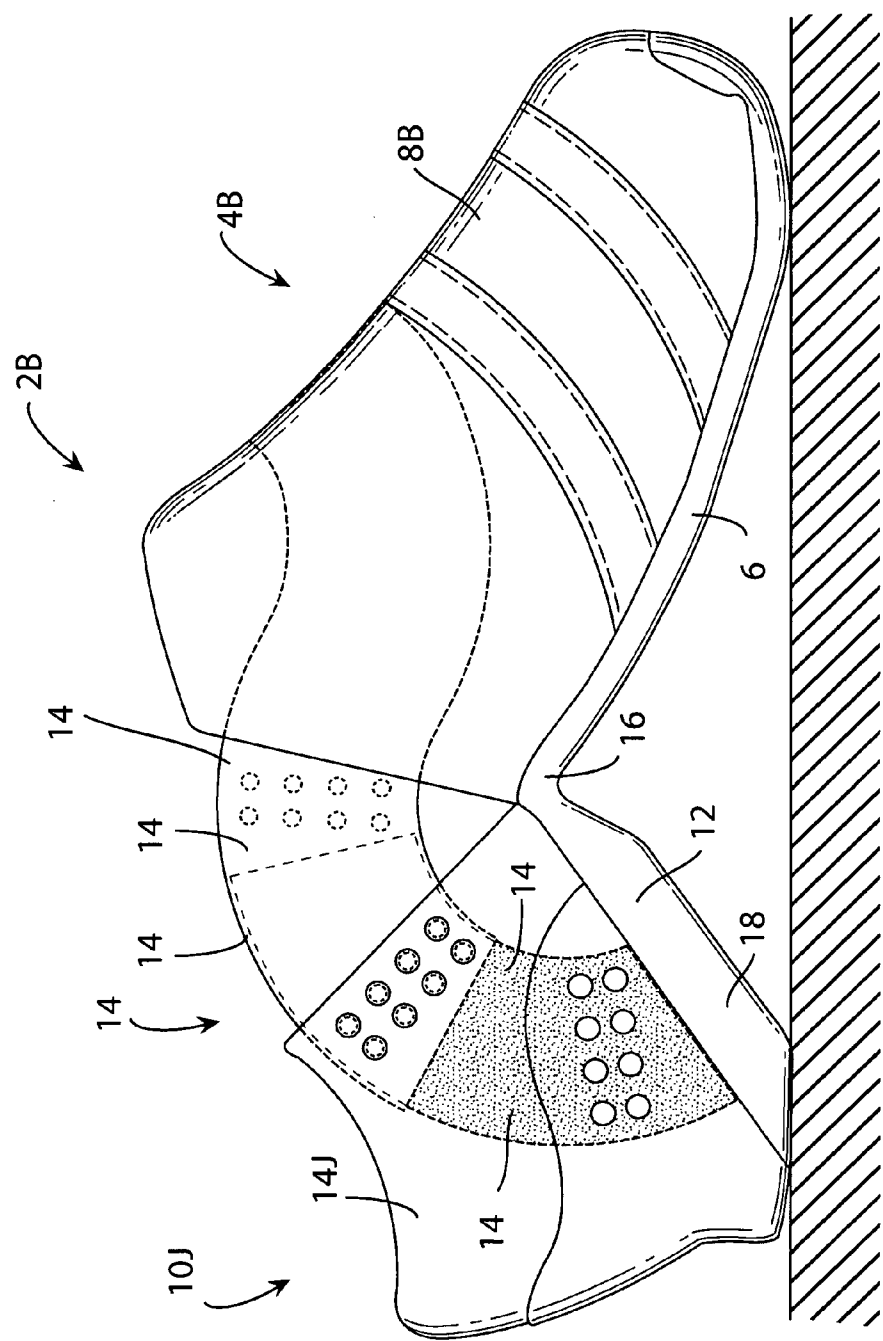


Fig. 14

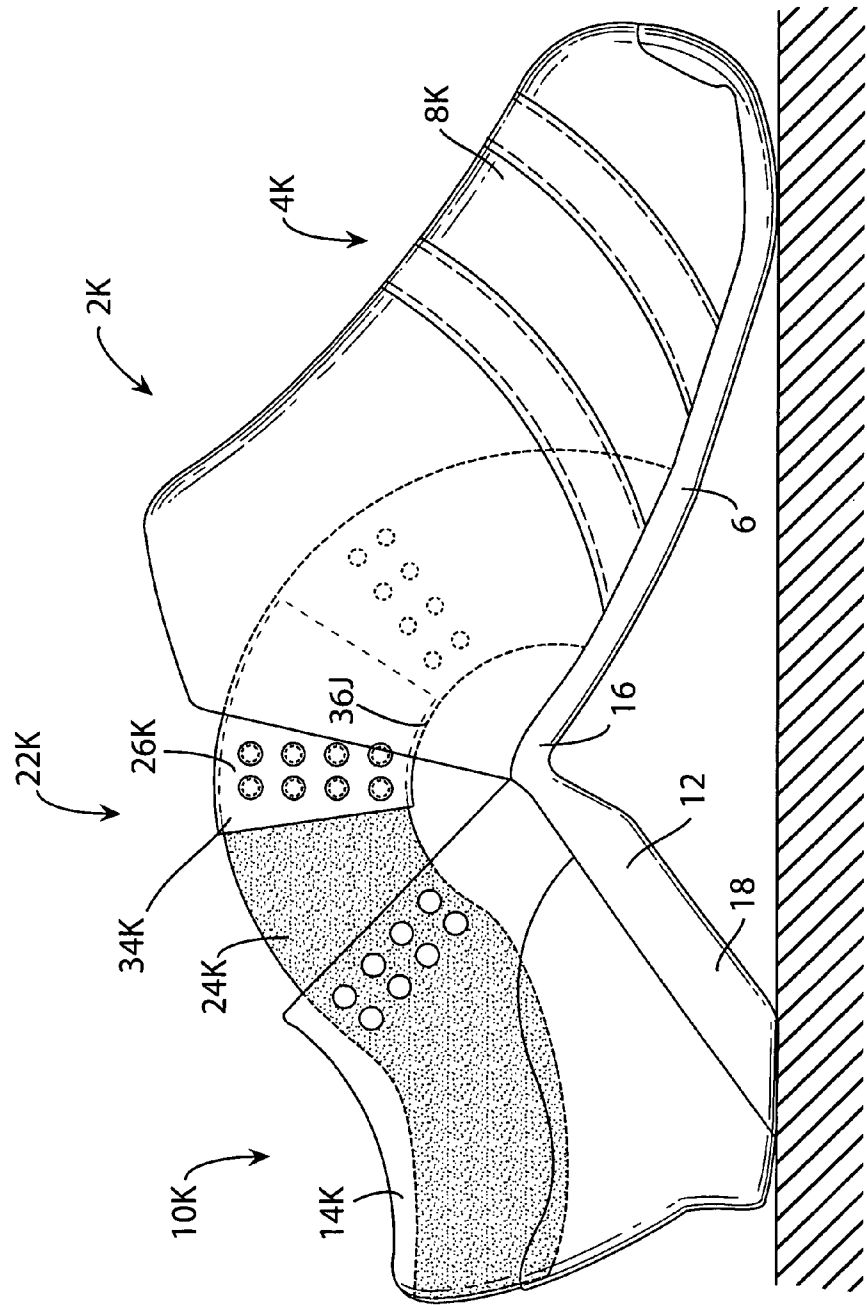


Fig. 15

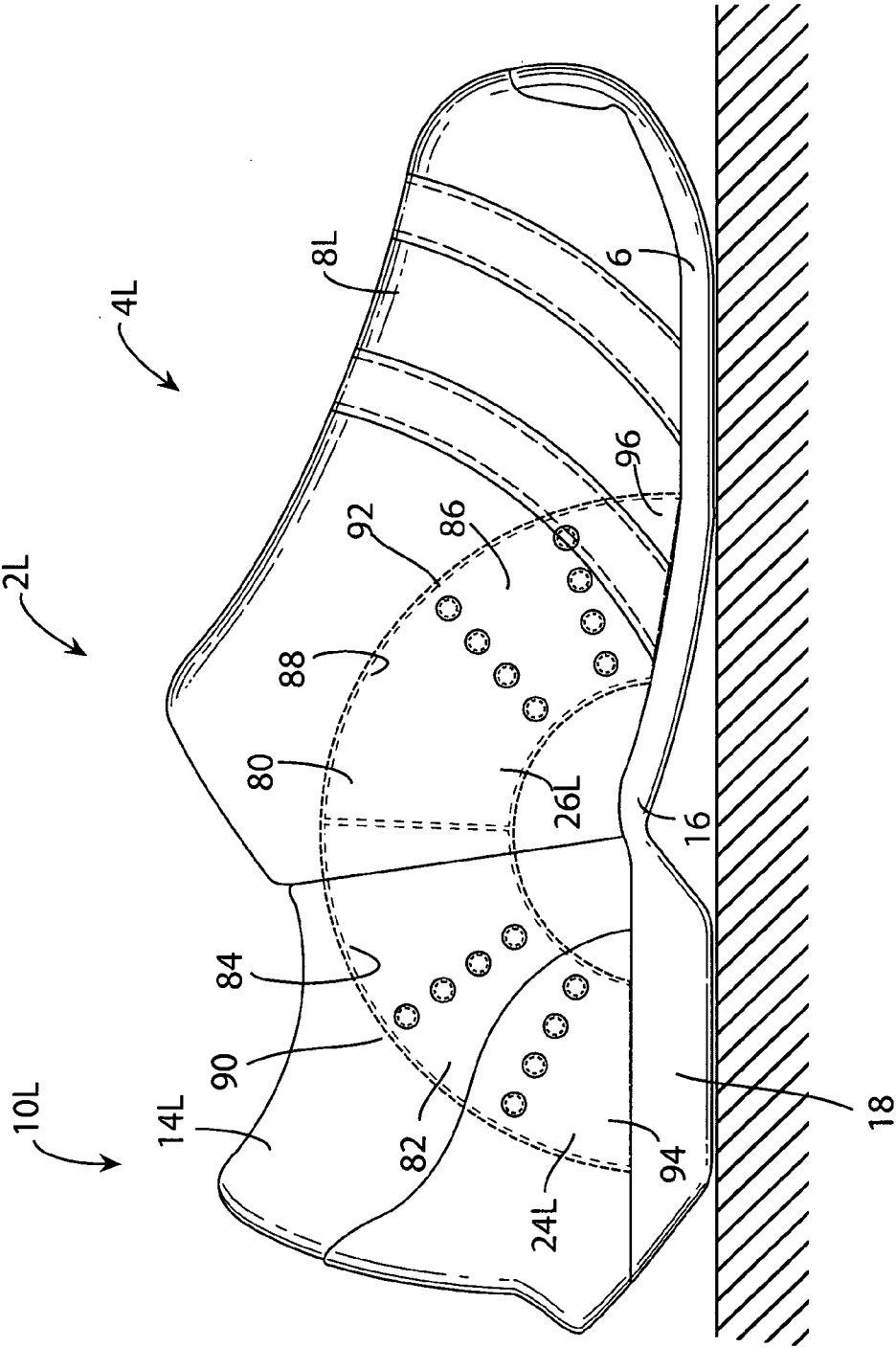


Fig. 16

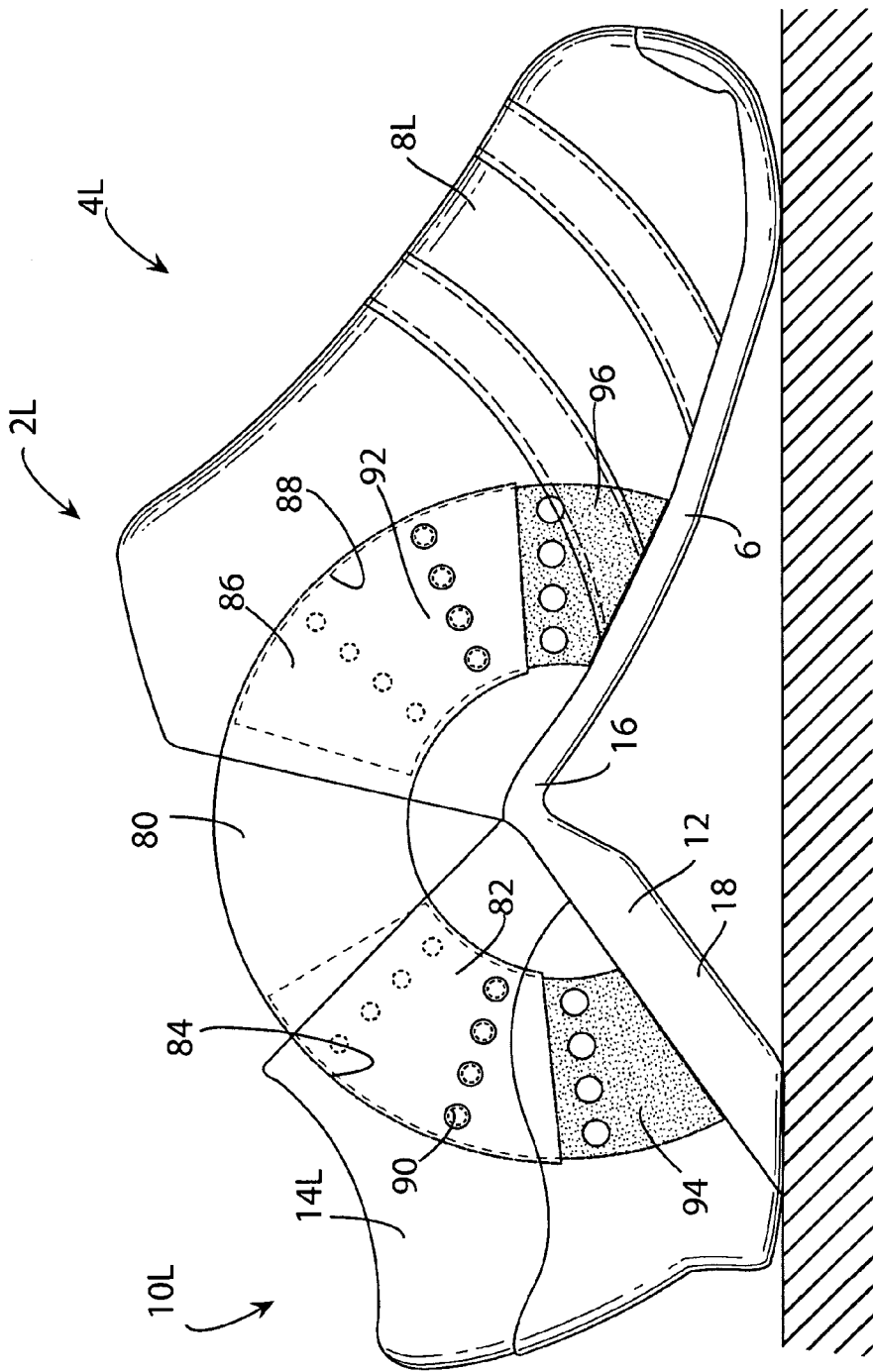


Fig. 17

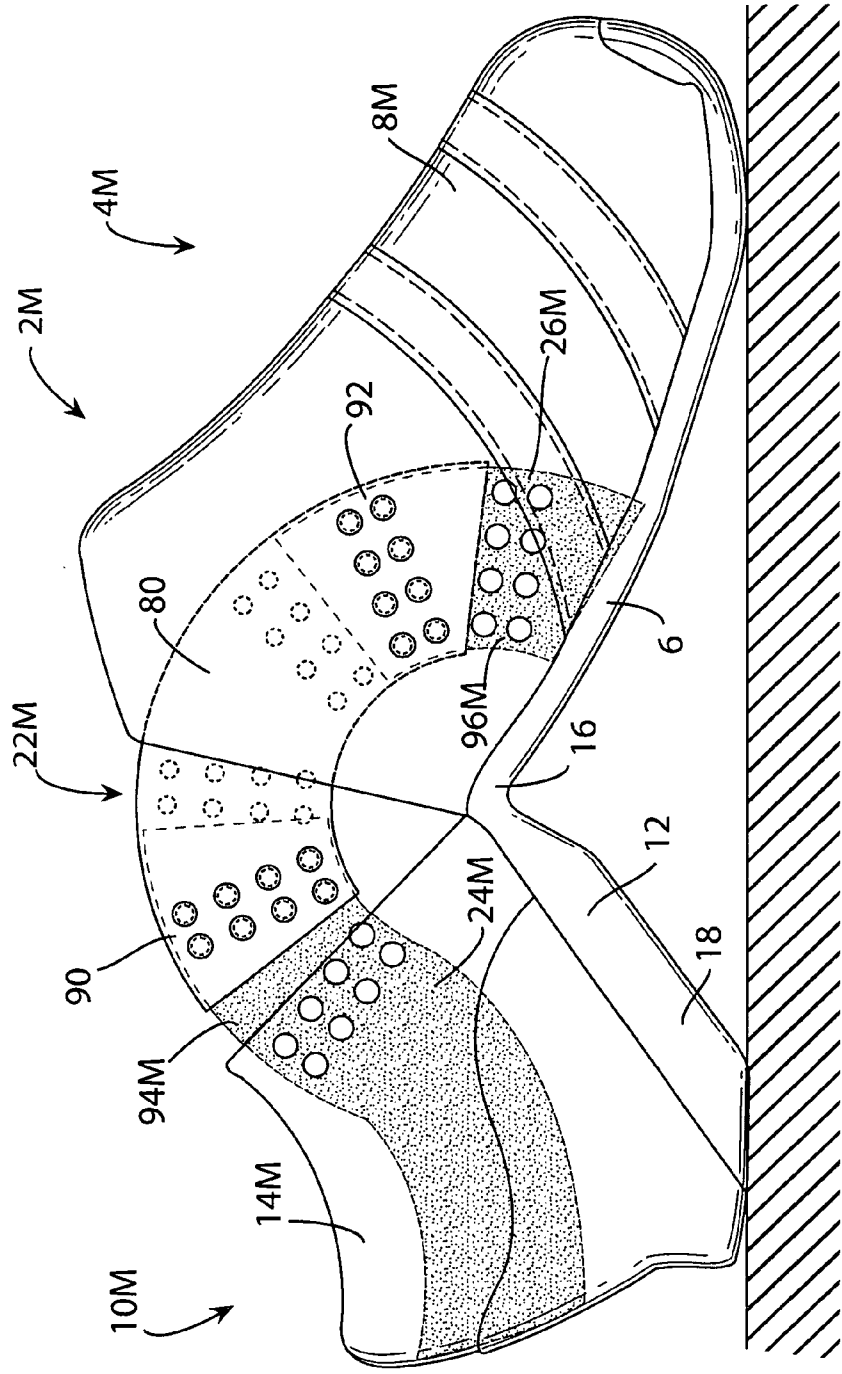


Fig. 18

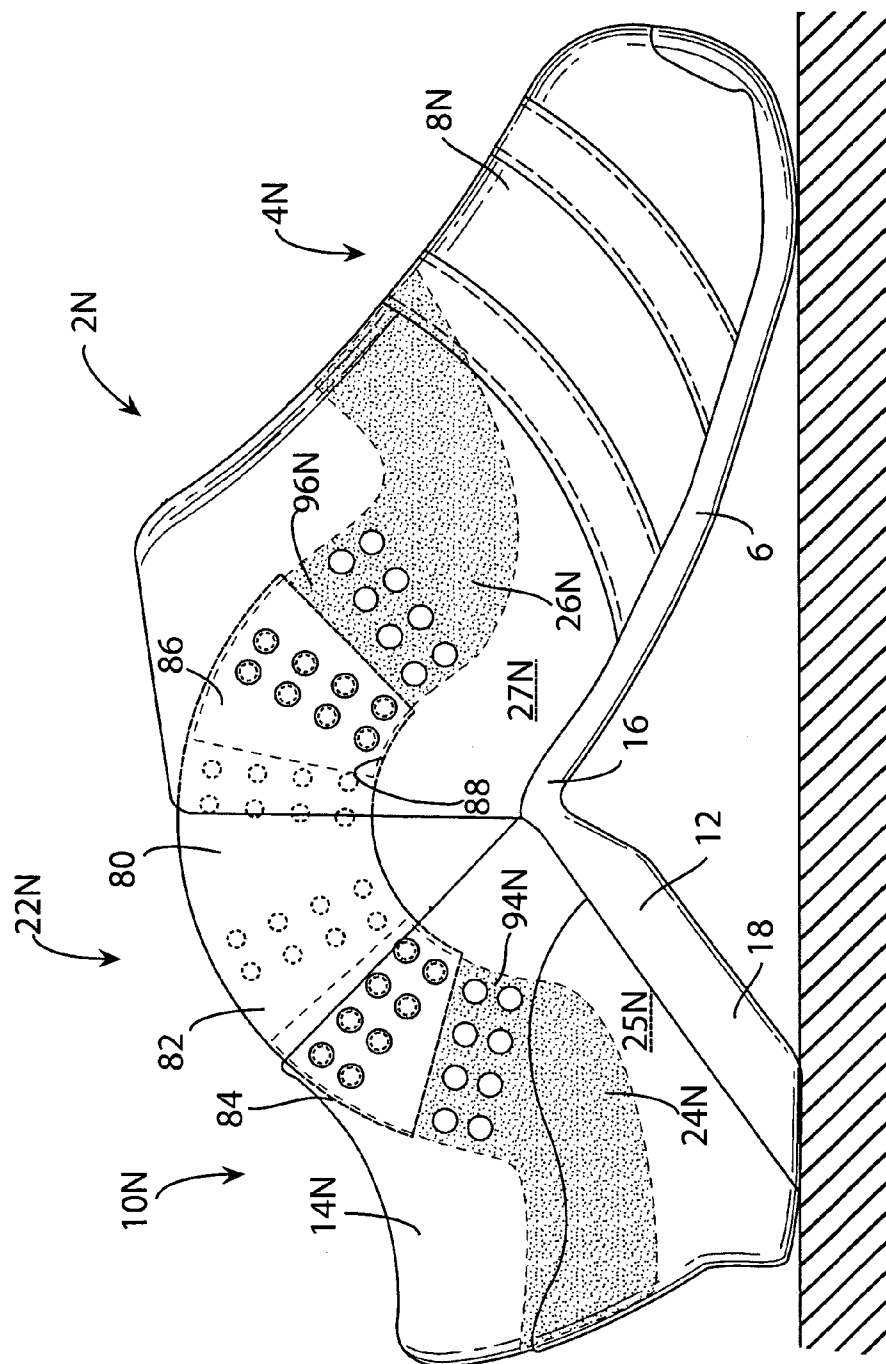


Fig. 19

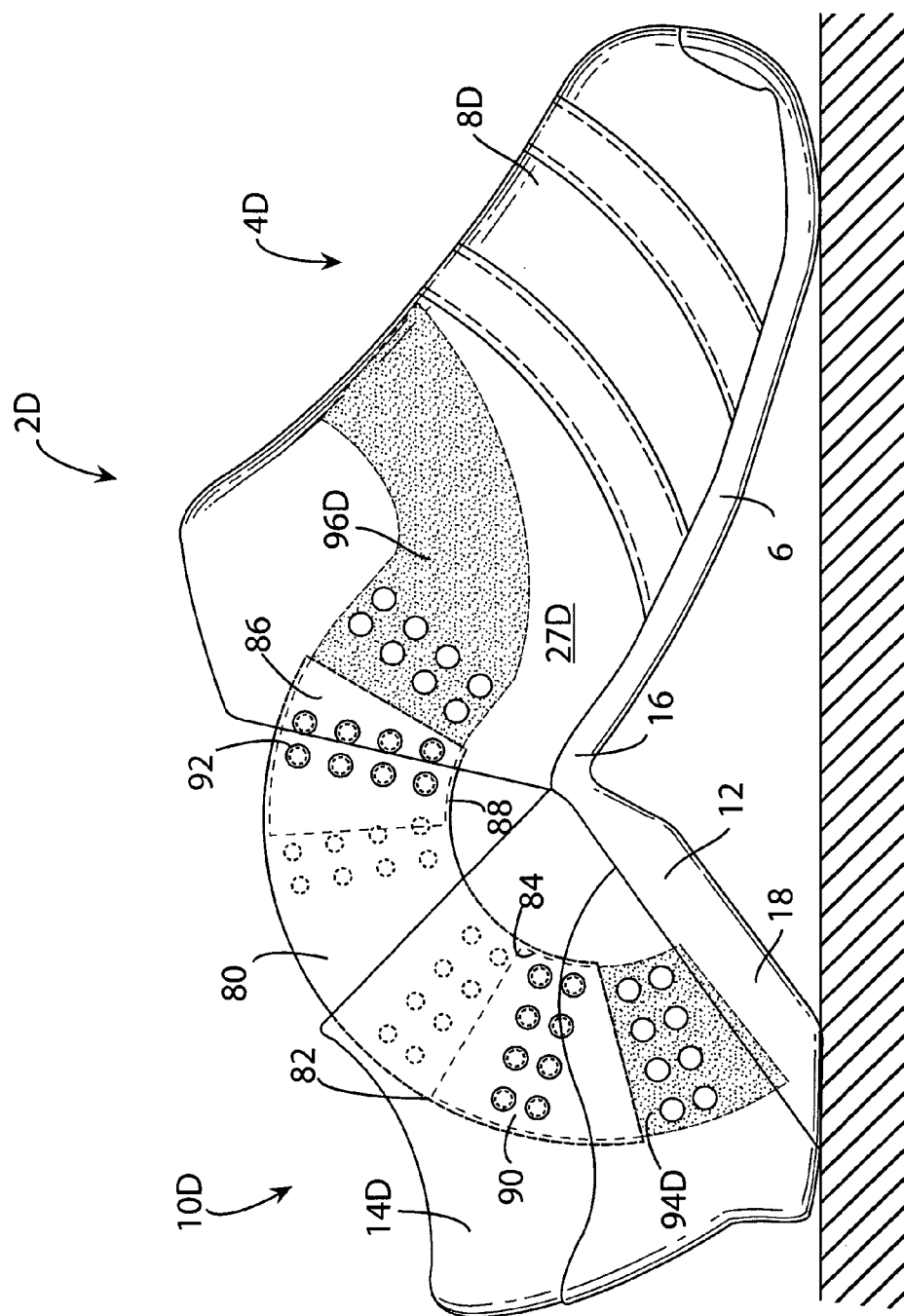


Fig. 20

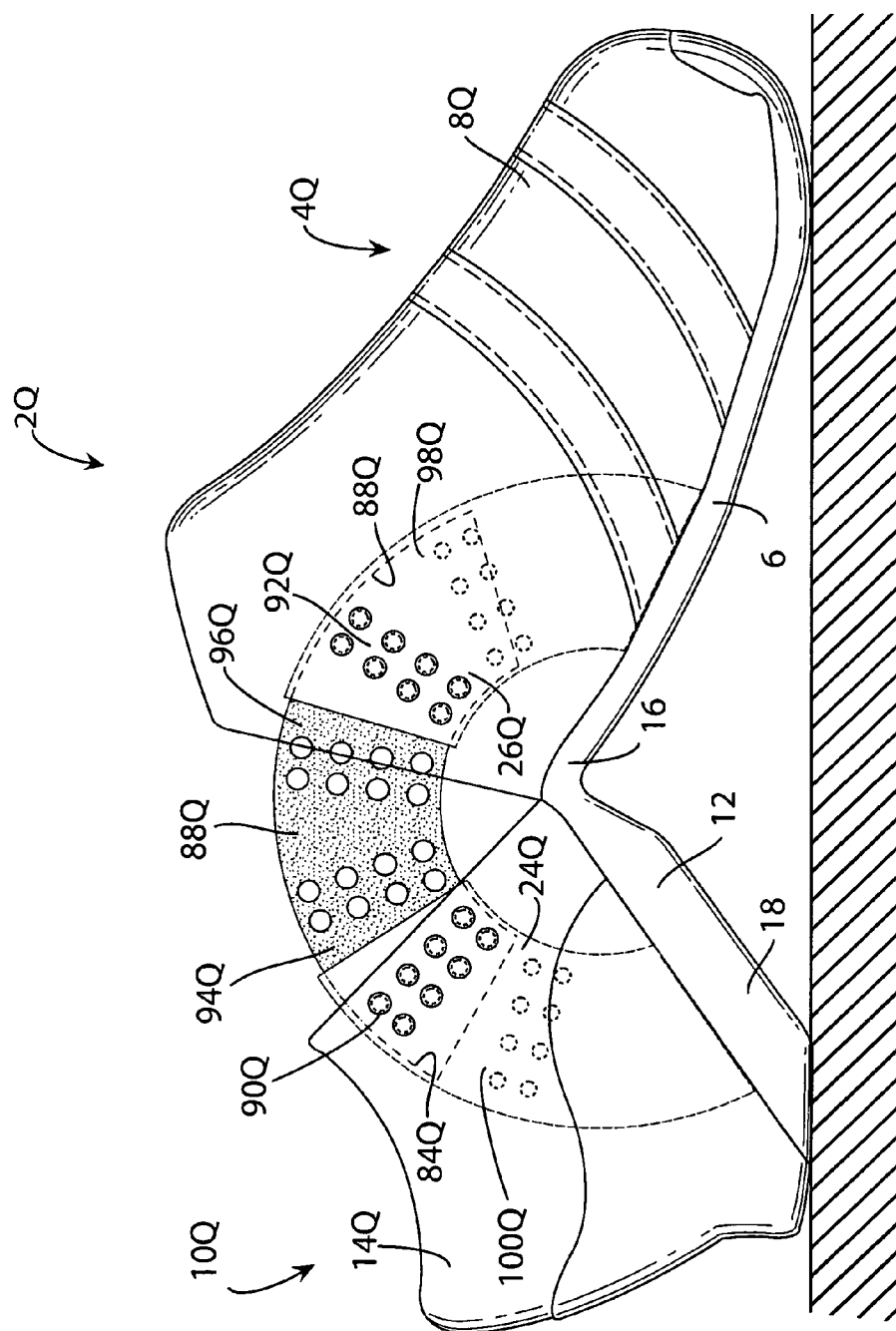


Fig. 21

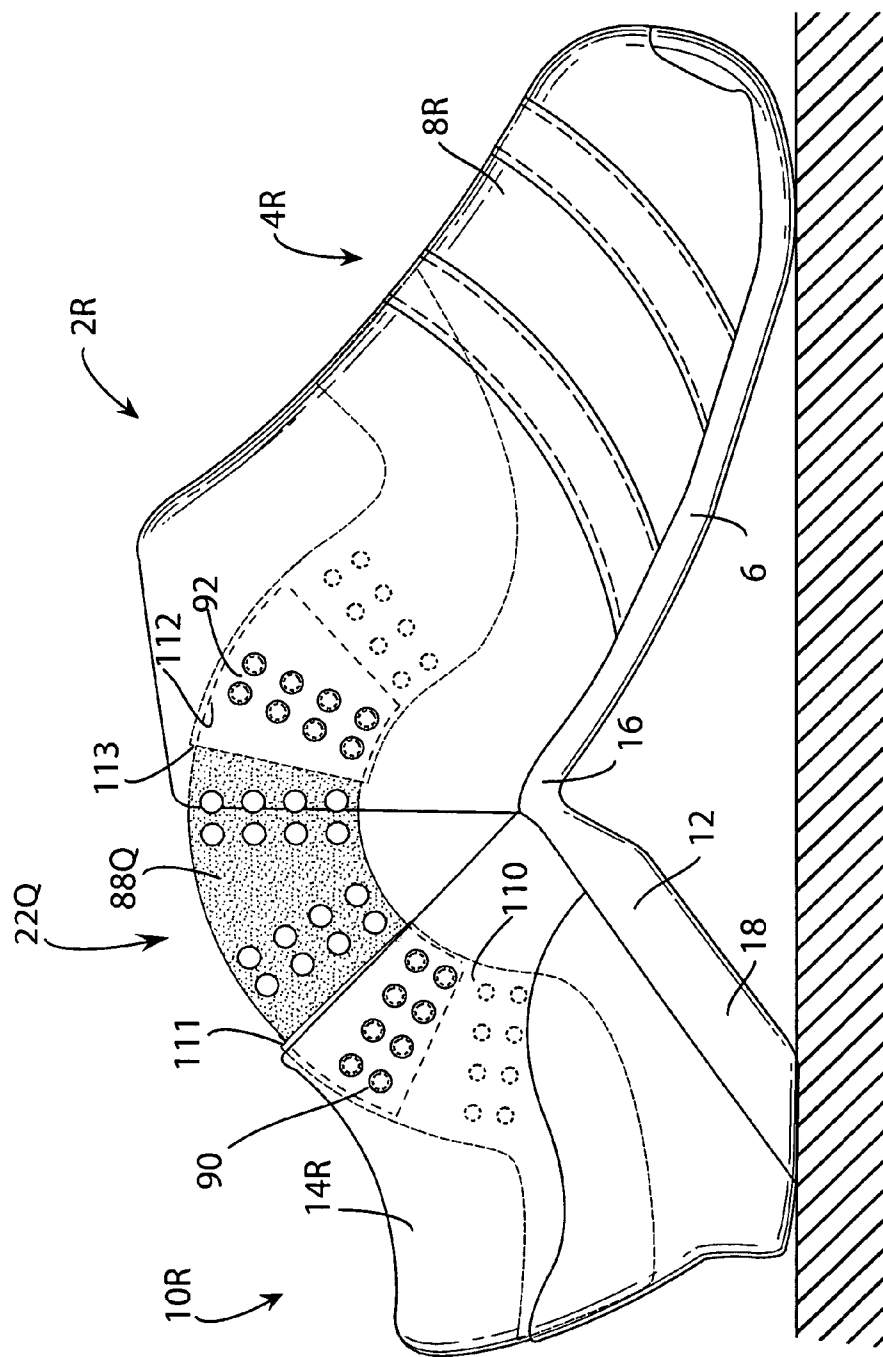


Fig. 22

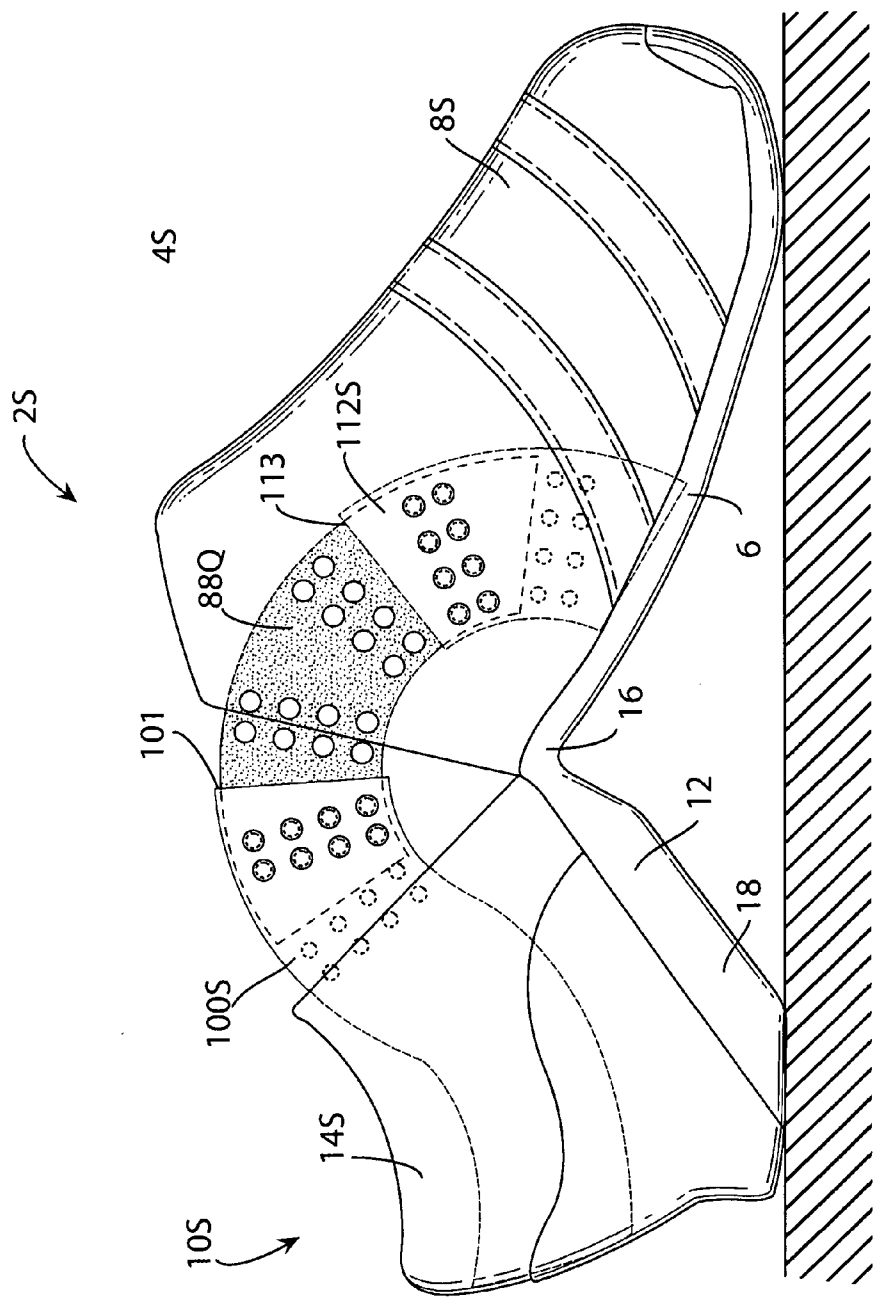


Fig. 23

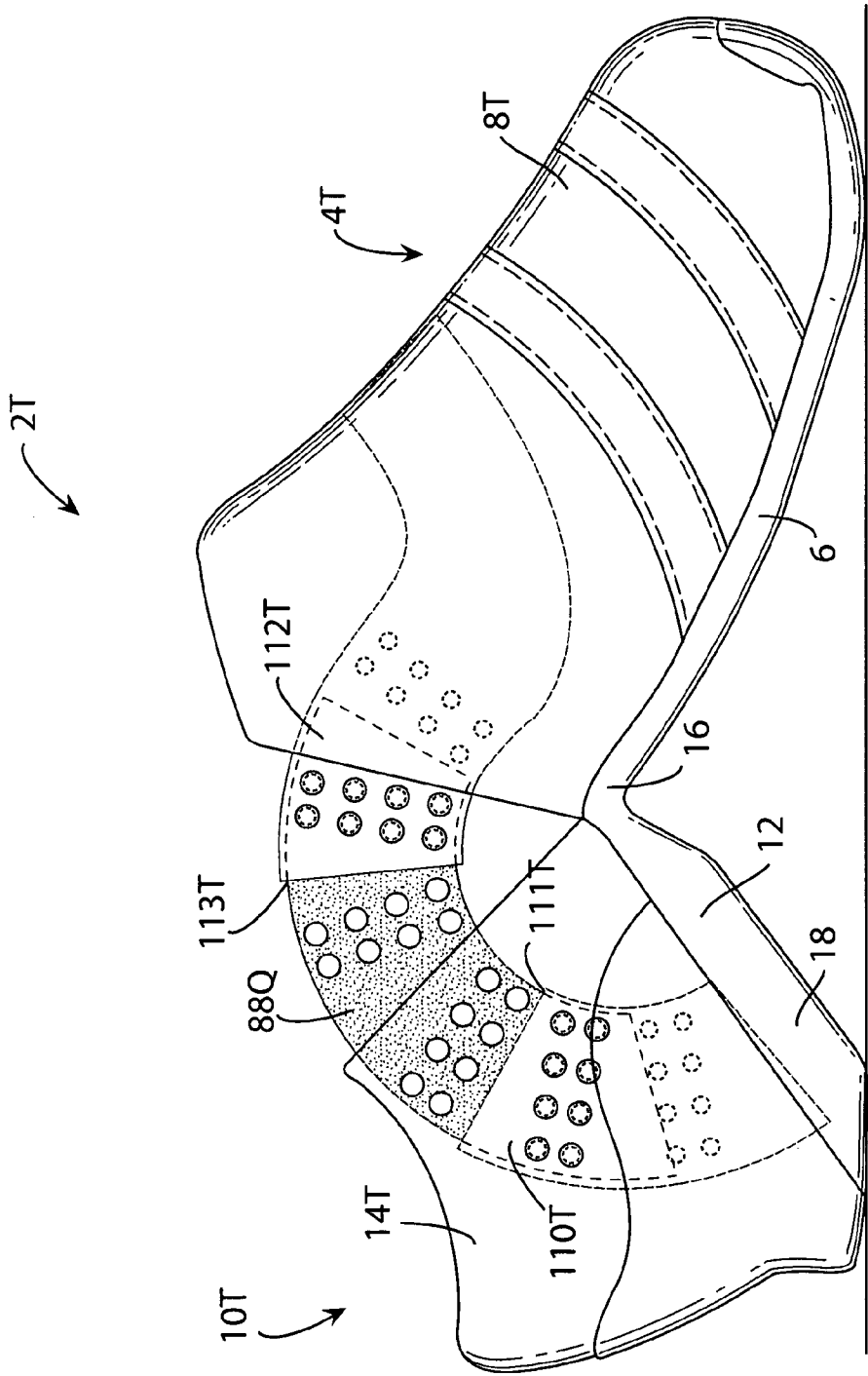


Fig. 24

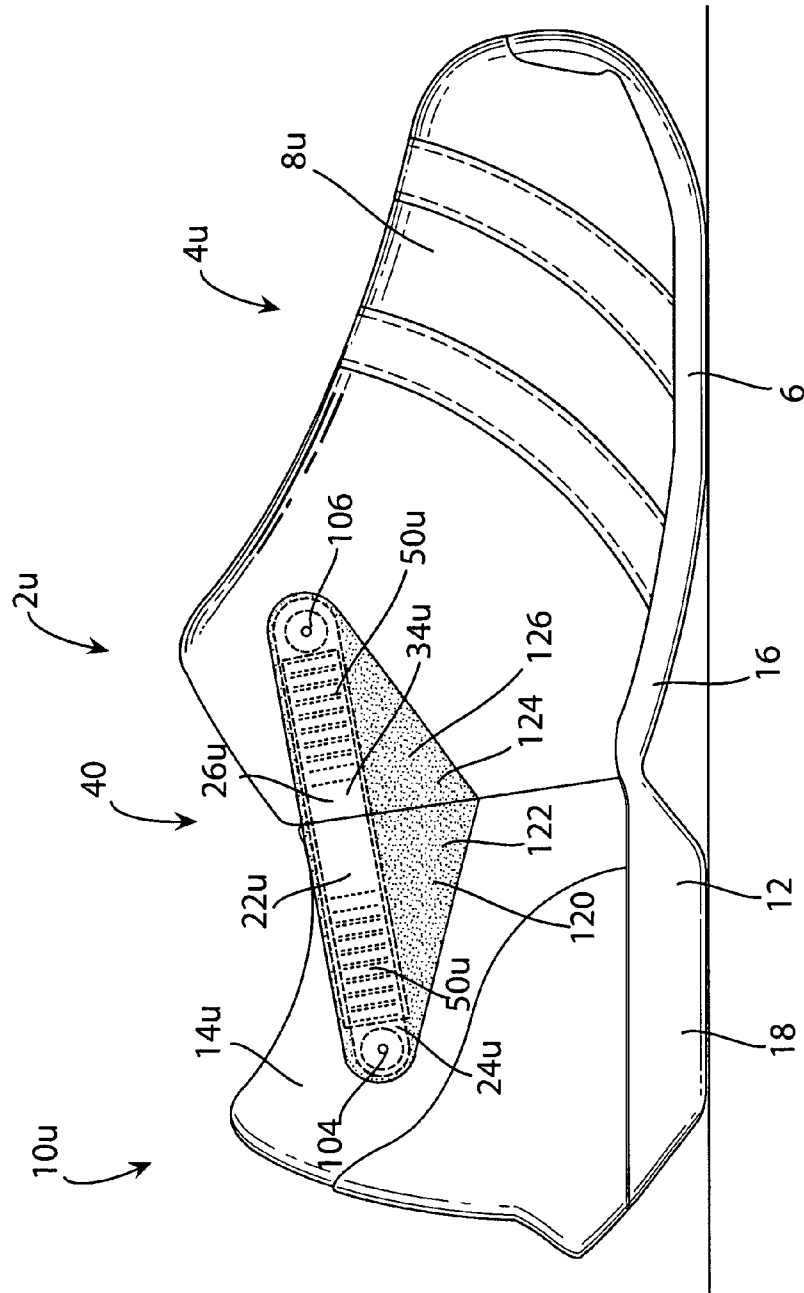


Fig. 25

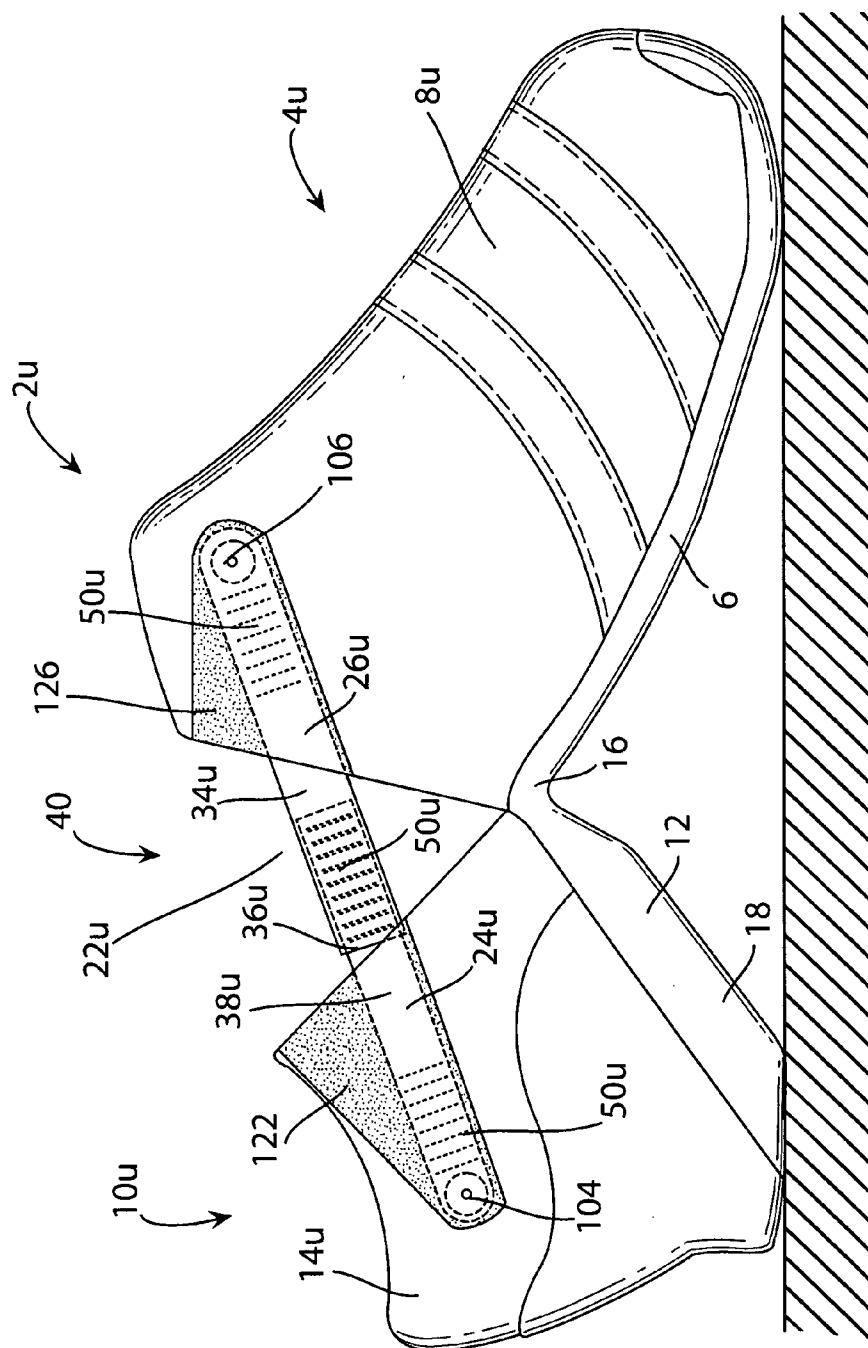


Fig. 26

SHOE

BACKGROUND OF THE INVENTION

[0001] The present invention is directed to a shoe. A problem with many conventional shoes is that the wearer must typically bend over to manipulate the laces, straps, or other fastener (Velcro). The wearer also must typically hold open the mouth of the shoe (even when wearing a shoe without laces, straps or fasteners) since maneuvering the foot through the mouth of the shoe can be challenging without some concurrent manipulation of the mouth of the shoe.

[0002] The present invention is directed to improved shoes and methods of donning a shoe that overcome the drawbacks of many conventional shoes which require manipulation of laces, straps or other fasteners and/or which require manipulating the mouth of the shoe or otherwise holding the shoe when donning the shoe.

SUMMARY OF THE INVENTION

[0003] The present invention is directed to a shoe that simplifies donning the shoe. Specific applications include shoes for children, the elderly and the disabled. Although the present invention has such applications, of course, the present application may be used for any other purpose including casual shoes, athletic shoes, clogs, sandals or even formal wear without departing from the scope of the invention.

[0004] The shoe may be manually manipulated into a bent position (which may also open the mouth of the shoe as described below) so that the wearer may simply step into the shoe. The bent position is also a stable position in that the shoe may still stand upright unaided while in the bent position. When the wearer steps onto the front sole and/or the rear sole, a bendable portion of the rear sole straightens so that the rear upper and rear sole close around the wearer's heel while the entire shoe closes around the wearer's foot.

[0005] A first coupling element holds the shoe in the bent position. The first coupling element extends between a front portion and a rear portion of the shoe. As the shoe moves to the bent position, the first coupling element has a first part that slides against a second part. The first and second parts are locked together in a locked position (which prevents further sliding movement) and holds the shoe in the bent position. In the bent position, the first coupling element may be under compression from a biasing force exerted by the rear sole. The first coupling element may be a separate element attached to the upper or sole or may be integrally formed with the upper or sole of the shoe. A second coupling element may also be provided on the other lateral side of the shoe. The second coupling element may be oriented the same or different from the first coupling element and may be any of those described herein or similar mechanisms within the scope of the invention.

[0006] In an aspect of the invention, the mouth of the shoe may be enlarged when the shoe is in the bent position that may further facilitate donning the shoe. The mouth of the shoe may be enlarged longitudinally and/or laterally. Longitudinal increase of mouth size may naturally occur as the shoe is moved to the bent position since this motion tends to open the mouth of the shoe (by moving the rear upper away from the front upper). The mouth may also be laterally increased in size since the coupling element may bow laterally outwardly due to compression on the first coupling element exerted by a biasing force of the sole of the shoe. Of course, the first

coupling element may not laterally enlarge the mouth without departing from other aspects of the present invention.

[0007] The first and second parts of the coupling element(s) may also lock together when the bendable portion of the rear sole is in the relaxed or unbiased position to provided added stability when worn if necessary. The locked position associated with the relaxed position may also be overcome with a modest application of force to remove the shoe. For example, the wearer may step on the heel of the shoe with the opposite foot while pulling up to withdraw the foot and "open" (bend) the bendable portion of the rear sole. Thus, the shoe of the present invention also may help in removing the shoe without manual manipulation. The coupling element may, in fact, be moved to the bent and locked position in this manner so that the shoe may also be opened and locked without manual manipulation. Stated another way, the rear portion is configured to be engaged by an opposing foot so that the bendable portion is moved to the bent position when the wearer steps on the rear portion with the opposing foot while pulling up with the foot wearing the shoe to be removed.

[0008] These and other aspects of the invention will become apparent from the following description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a side view of a shoe in a relaxed, unbiased position.

[0010] FIG. 2 is a side view of the shoe in a bent position.

[0011] FIG. 3 is a partial cross-sectional view of the shoe.

[0012] FIG. 4 is another partial cross-sectional view of the shoe.

[0013] FIG. 5 shows an alternative embodiment of the shoe.

[0014] FIG. 6 shows another embodiment of the shoe.

[0015] FIG. 7 shows still another embodiment of the shoe.

[0016] FIG. 8 is a top view of the shoe in the relaxed position.

[0017] FIG. 9 is a top view of the shoe in the bent position showing the mouth of the shoe enlarged laterally and longitudinally.

[0018] FIG. 10 shows another locking mechanism for locking the first and second parts together.

[0019] FIG. 11 shows the shoe with integrally formed aspects.

[0020] FIG. 12 shows an alternative embodiment of the shoe.

[0021] FIG. 13 shows another embodiment of the shoe.

[0022] FIG. 14 shows still another embodiment of the shoe.

[0023] FIG. 15 shows yet another embodiment of the shoe.

[0024] FIG. 16 shows another shoe having an intermediate element with a front recess and a rear recess in an unbiased position.

[0025] FIG. 17 shows the shoe of FIG. 16 in the bent position.

[0026] FIG. 18 shows an alternative shoe using the intermediate element of FIG. 16.

[0027] FIG. 19 shows another shoe using the intermediate element of FIG. 16.

[0028] FIG. 20 shows still another shoe using the intermediate element of FIG. 16.

[0029] FIG. 21 shows another intermediate element having a front insert and a rear insert.

[0030] FIG. 22 shows an alternative shoe using the intermediate element of FIG. 16.

[0031] FIG. 23 shows another shoe using the intermediate element of FIG. 16.

[0032] FIG. 24 shows still another shoe using the intermediate element of FIG. 16.

[0033] FIG. 25 shows yet another shoe in a relaxed, unbiased position.

[0034] FIG. 26 shows the shoe of FIG. 25 in a bent position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] Referring to FIGS. 1 and 2, a shoe 2 in accordance with the present invention is shown. The shoe 2 has a front portion 4 including a front sole 6 and a front upper 8. The front upper 8 is attached to and extends over the front sole 6 and over a foot of a wearer. The shoe 2 also includes a rear portion 10 coupled to the front portion 4. The rear portion 10 has a rear sole 12 and a rear upper 14 attached to the rear sole 12. The rear upper 14 and the rear sole 12 are configured to support a heel of the wearer. The term “shoe” as used herein shall mean any foot support and covering including but not limited to casual shoes, sandals, clogs, athletic shoes, formal shoes and orthopedic shoes. The front upper 8 and rear upper 14 may be any suitable material including, but not limited to, a woven material, a composite material such as those use in athletic shoes, rubber, leather or a combination.

[0036] The rear sole 12 includes a bendable 16 portion and a rear heel portion 18. The bendable portion 16 of the rear sole 12 is resilient and bendable from a relaxed position (FIG. 1) to a bent position (FIG. 2). In the bent position, the bendable portion 16 is in a biased condition so that the rear sole 12 is biased toward the relaxed position relative to the front sole 6 by the bendable portion 16. The rear heel portion 18 supports at least part of the heel of the wearer. The bendable portion 16 of the rear sole 12 may be formed of a resilient material that resists bending but can be bent manually or with the other foot when removing the shoe 2 as described below. Of course, the rear heel portion 18 (and/or part of the front sole 6) may also bend somewhat without departing from the scope of the invention. Furthermore, the bendable portion 16 may be somewhat large compared to the rear heel portion 18 and may constitute a significant part of the rear sole 18 without departing from the scope of the invention. To this end, the rear heel portion 18 may be quite small without departing from the scope of the invention.

[0037] The bendable portion 16 is positioned between the rear heel portion 18 and the front sole 6. The bendable portion 16 is bent so that the front sole 6 and the rear heel portion 18 change an angle A relative to one another by at least 20 degrees when the bendable portion 16 moves to the bent position. The rear upper 14 is coupled to the rear sole 6 so that the rear upper 14 changes orientation with the rear heel portion 18 of the rear sole 12. Likewise, the front upper 8 is coupled to the front sole 6 so that the front upper 8 changes orientation with the front sole 6 when the bendable portion 16 of the rear sole 12 moves to the bent position.

[0038] The rear portion 10, and in particular the bendable portion 16 of the rear sole 12, is configured so that the rear sole 12 and the front sole 6 are shaped to rest stably in an upright position when the rear sole 12 is in the bent position as shown in FIG. 2. In this stable, upright position, the wearer may simply step onto the rear and/or front sole 12, 6. The locked position is automatically overcome when the user steps onto the shoe 2.

[0039] The front sole 6 and the rear sole 12 may be integrally formed and to this end may include a continuous layer 20 extending therebetween. The front sole 6 and the rear sole 12 may also have a laminated or layered structure. Furthermore, the front upper 8 and/or the rear upper 14 may also be integrally formed with the front sole 6 and/or rear sole 12 or may be separately formed and attached to the front and rear soles 6, 12 without departing from the term “coupled” or “attached” as used herein. Another shoe is described below in which other parts of the shoe (and even the whole shoe) may be integrally formed.

[0040] The shoe 2 also includes a first coupling element 22 extending between the front portion 4 and the rear portion 10. The first coupling element 22 has a first part 24 coupled to the rear portion 10 and a second part 26 coupled to the front portion 4. The first part 24 and the second part 26 slide relative to, and against, one another when the rear sole 12 moves from the relaxed position to the bent position. The first part 24 is coupled to the rear heel portion 18 to change orientation with the rear heel portion 18 when the bendable portion 16 is in the bent position. Likewise, the second part 26 is coupled to the front portion 4 so that the second part 26 changes orientation with the front portion 4. The compressive force exerted on the first coupling element 22 may be only part of the biasing force exerted by the bendable portion 16 of the rear sole 18 since other parts of the shoe 2 (and even another coupling element on the other side as described below) may absorb some of this force. Furthermore, other portions of the shoe 2, such as the front upper 8 or the rear upper 14, may also contribute to resisting movement to the bent position and exerting a force to bias the rear sole 18 and front sole 6 back to the relaxed position without departing from the scope of the invention. Various aspects of the present invention are directed to use of the bendable portion 16 and, specifically, a resilient bendable portion 16 that provides a “natural” more comfortable sole compared to some prior art shoes. Other aspects of the present invention may, of course, be practiced without the resilient, bendable portion 16 of the rear sole 12. The shoe 2 of the present invention may also be locked in the relaxed position as described below.

[0041] The rear portion 10, and in particular the bendable portion 16 of the rear sole 12, is configured so that the rear sole 12 may be manually manipulated into the bent position and, together with the front sole 6, will permit the shoe 2 to rest in a stable upright position when placed on the ground as shown in FIG. 2. As mentioned above, the bendable portion 16 of the rear sole 12 may be positioned at any location between a heel 30 and a toe 32 such as near the middle, near the toe 32 or even near the heel 30 without departing from the scope of the invention.

[0042] Referring now to cross-sectional views of FIGS. 3 and 4, the first part 24 has a first recess wall 34 that forms a first recess 36 and is coupled to the rear portion 10. The second part 26 has a first insert 38 positioned in the first recess 36. The first insert 38 slides within the first recess 36 when the rear sole 12 moves to the bent position. The first recess wall 34 may be coupled to the rear sole 12 so that the biasing force of the rear sole 12 when the rear sole 12 is in the bent position is transferred from the rear sole 12 to the first recess wall 34 (see FIGS. 1 and 2). The first insert 38 may be coupled to the front upper 8 so that a biasing force is transferred to the first insert 38 through a portion 27 of the rear upper 8 positioned between the first insert 38 and the front sole 6.

[0043] Referring to FIG. 5, another shoe 2A is shown wherein the same or similar reference numbers refer to the same or similar structure. A first recess wall 34A is coupled to a rear upper 14A so that the biasing force is transferred from the rear sole 18 to the first recess wall 34A through a portion 25A of a rear upper 14A positioned between the first recess wall 34A and the rear sole 12 (and specifically the rear heel portion 18). All aspects of shoe 2 are applicable to shoe 2A and incorporated for shoe 2A as with all other shoes described herein.

[0044] Referring to FIG. 6, still another shoe 2B is shown having a first insert 38B coupled to the front sole 6 (rather than front upper 14) so that the biasing force is transferred from the front sole 6 to the first insert 38B. The first recess wall 34B is coupled to the rear sole 12 similar to shoe 2. Still another shoe 2C is shown in FIG. 7 in which a first recess wall 38C (which forms first recess 36C) is coupled to a rear upper 14C and a first insert 38C is coupled to the front sole 6 so that the biasing force is directly applied to the first recess wall 38C and the first insert 38 by the rear sole 18 and the front sole 6. As mentioned above, the first part 24 and the second part 26 automatically move to the locked position when the shoe 2 is manipulated into the bent position of FIG. 2. The locked position prevents further relative sliding between the first part 24 and the second part 26. The locking engagement between the first and second parts 24, 26 holds the bendable portion 16 of the rear sole 12 in the bent position. The locked position is automatically overcome when the wearer steps onto the front and/or rear sole 6, 12.

[0045] Referring to FIGS. 3 and 4, the first coupling element 22 may include a plurality of protrusions 50 coupled to the first part 24 and/or the second part 26. The protrusions 50 may simply be compressed to lock the first and second parts 24, 26 together. FIG. 3 shows the protrusions 50 coupled to the first part 26 and, in particular, form part of the first recess wall 34 which forms the recess 36. The other part, such as the second part 26 in this case, may have a complementary structure, such as additional protrusions, depressions, or openings, which cooperate with the protrusions to lock the first and second parts 24, 26 together. For example, the insert 38 may have depressions 51 that form the locking engagement with the protrusions 50 as shown in FIG. 4. A modest amount of force is required to move the protrusions 50 out of the depressions 51 thereby locking the first and second parts 24, 26 together while still easily being overcome when the user steps into the shoe. The shoe 2 may also be in a locked position when in the relaxed or unbiased position as described below.

[0046] The locked position may be provided in any suitable manner including a compression fit, friction fit, Velcro, or one or more bendable tabs which are sufficient to resist opening of the bendable portion 16 of the rear sole 14 from the bent position. The locked position may also be provided with the insert 38 being simply larger than a portion of the recess 36 so that simple friction "locks" the insert 38 to the recess wall 34. Thus, the term "locked" as used herein does not require any physical connection or interlocking relationship and may simply be a frictional engagement without other physical connection. The locked position 24 is overcome by the wearer stepping onto the front and/or rear sole 6, 12 so that the rear sole 12 and the rear upper 14 close around the wearer's heel as the bendable portion 16 of the rear sole 12 straightens relative to the front sole 6.

[0047] The first part 24 and the second part 26 may lock together at a location independent of the recess 36 and the

insert 38. For example, the insert 38 may become locked to a structure outside the recess 36 without departing from the scope of the invention so long as the insert 38 remains within the recess 36. The first insert 38 and the first recess 36 have similar and complementary shapes. The recess 36 and recess wall 38 may have any suitable cross section such as circular, oval, or generally rectangular with smooth edges. The recess 36 and recess wall 38 also do not have to completely surround the insert 38. For example, the recess wall 38 and recess 36 may be somewhat C-shaped or U-shaped without departing from the scope of the invention. Furthermore, the recess 36 and recess wall 38 do not need to be long and may, in fact, be somewhat short such as a relatively thin strap. Finally, the recess wall 38 may not be solid and may be a woven, wound or even an extruded tube of material having interstitial spaces or voids formed therein without departing from the scope of the invention.

[0048] The first and second parts 24, 26 may also lock together in the relaxed or unbiased position of the bendable portion 16 as shown in FIG. 1. To this end, the first coupling element 22 may include protrusions 50 and depressions 51 that cooperate in the relaxed position as shown in FIG. 1. The rear portion 10, such as the rear sole 12, may be engaged by the opposing foot of the wearer to remove the shoe 2 with the locked position being overcome with a modest amount of force. For example, when the rear portion 10 is stepped on by the opposing foot, the locked position may be overcome when the user pulls up with the foot wearing the shoe 2 to be removed with a modest amount of force. In this manner, the locked position of the bendable portion 16 in the relaxed position is overcome when removing the shoe 2 without manual manipulation. Thus, the present invention may also facilitate removing the shoe 2 without manual manipulation particularly since a mouth 40 of the shoe 2 may be enlarged to some extent as now described with reference to FIGS. 8 and 9.

[0049] Referring now to FIGS. 8 and 9, top views of the shoe 2 are shown. The shoe 2 has the mouth 40 into which the wearer's foot is introduced and positioned. The mouth 40 is formed between the front portion 4 and the rear portion 10. The shoe 2 may also include a second coupling element 42 which may have any of the features and characteristics of the first coupling element 18 which are expressly incorporated here. It is also understood that the second coupling element 42 may be the same as the first coupling element 18 or may be different. The second coupling element 42 also has a first part 43 coupled to the rear portion 10 and a second part 45 coupled to the front portion 4.

[0050] The first coupling element 22 extends along a lateral side 46 between the front portion 4 and the rear portion 10 while the second coupling element 42 extends along an opposing lateral side 48 from the first coupling element 22. Like the first coupling element 22, the second coupling element 42 is compressed between the front and rear portions 4, 10 when the bendable portion 16 of the rear sole 12 is bent.

[0051] The mouth 40 may be enlarged in a lateral direction by the first coupling element 22 (which bends outwardly in a lateral direction) when the rear sole 12 is in the bent position. The first coupling element 22 is compressed when the rear sole 12 is in the bent position relative to the front sole 6. The first coupling 22 is compressed between the first part 26 and the second part 28 by the biasing force created by the bendable portion 16 of the rear sole 12. Stated another way, the first coupling element 22 is compressed between the front portion

4 and rear portion 10 by the biasing force exerted by the bendable portion 16 of the rear sole 18 in the bent position. The second coupling element 42 may also be deformed outwardly to further enlarge the mouth 40 of the shoe 2 and all characteristics and features of the first coupling element 22 are incorporated here for the second coupling element 22.

[0052] As such, an advantage of the present invention is that the mouth 40 of the shoe 2 may be enlarged when the shoe 2 is in the bent position. The mouth 40 may increase in size laterally since the first and/or coupling elements 22, 42 may be bowed slightly outward laterally due to compression on the elements 22, 42. The mouth 40 may also be longitudinally increased in size as the rear sole 14 is bent since the rear upper 14 simply tends to move away from the front upper 8 when the rear sole 12 is bent. Increasing the dimensions of the mouth 40 may help the wearer step into the shoe without having to manipulate the shoe 2. The rear sole 12 and the rear upper 14 close around the wearer's heel when the user steps onto the rear sole 12 and/or the front sole 6. The term "lateral" and "longitudinal" as used herein shall mean relative to the orientation of the foot of the wearer or the shoe itself with longitudinal LO being heel to toe and lateral LA being transverse to longitudinal LO. As mentioned herein, all aspects of each of the shoes are applicable to all other shoes and this is applicable to all features and aspects of enlarging the mouth of the shoe in the bent position.

[0053] Referring now to FIG. 10, another shoe 2D is shown wherein the same or similar reference numbers refer to the same or similar structure. A first coupling element 22D is configured so that a first part 24D is locked to a second part 26D in a plurality of discrete positions so that the first part 24D and the second part 26D are slidable to a plurality of locked positions by manual manipulation. Each of the locked positions is a stable position (as defined herein) and each of the locked positions may be overcome to move the rear heel portion 18 back toward a relaxed position relative to the front sole 6 when the wearer steps into the shoe 2D. The first part 24D includes a first set of protrusions 60, similar to mechanical teeth 61, while the second part 26 includes a second set of protrusions 62. The first and second sets of protrusions 60, 62 engage one another in a nearly continuous manner similar to interlocking mechanical teeth so that the bendable portion 16 of the rear heel portion 18 can assume varying degrees of bending when locked. Similar to the discussion above, the first and second parts 24D, 26D may simply have a friction fit which is continuously variable without departing from the scope of the invention. Any shoe described herein may include the locking mechanism shown in FIG. 10 or any other suitable locking mechanism as described herein.

[0054] Referring to FIG. 11, another shoe 2E is shown which has integrally formed parts. To this end, the shoe 2E may be made of rubber (such as an injection molded rubber product) that integrates various parts (and even the whole) shoe 2E. For example, a first part 24E may be integrally formed with a rear portion 10E such as a rear upper 14E while a second part 26E may be integrally formed with a front portion 4E such as a front upper 8E. Even the first part 24E and the second part 26E may be integrally formed in that the entire shoe 2E of FIG. 11 is integrally formed while still having parts that slidably engage one another. It is understood that any of the shoes described herein may be integrally formed while still being "coupled" or "attached" together. For example, when it is said that the first insert is coupled to the front upper, the insert may be a separate piece attached to the

front upper, integrally formed with the front upper, or coupled to the front upper via another element (similar to embodiments below in connection with an intermediate element).

[0055] Referring to FIG. 12, another shoe 2G is shown wherein the same or similar reference numbers refer to the same or similar structure and all characteristics and aspects of the same or similar structures shall be incorporated for each of the structures for all shoes described herein. A first part 24G includes a first insert 38G coupled to a rear portion 14G and a second part 26G having a first recess wall 34G forming a recess 36G and coupled to a front portion 8G. The first insert 38G is positioned and slidable within the first recess 36G and is automatically locked relative to the first recess 36G when the rear sole 12 is in the bent position (and possibly more positions as described herein). The first insert 38G is coupled to the rear sole 12 so that the biasing force is transferred from the rear sole 12 directly to the first insert 38G. The first recess wall 34G, which forms the first recess 36G, is coupled to the front sole 6 so that forces exerted by the front sole 6 are directed to the first recess wall 34G.

[0056] FIGS. 13-15 show additional shoes 2H, 2J, 2K in accordance with the present invention wherein the same or similar reference numbers refer to the same or similar structure. FIG. 13 shows the shoe 2H having a first insert 38H coupled to a rear upper 14H and a first recess wall 34H, which forms the first recess 36H, coupled to the front upper 8H. FIG. 14 shows the shoe 2J with a first insert 38J coupled to the rear sole 14J and a first recess wall 34J, which forms the first recess 36J, coupled to the front upper 8J. FIG. 15 shows shoe 2K including a first insert 38K coupled to a rear upper 14K and a first recess wall 34K, forming the first recess 36K, coupled to the front sole 6. As mentioned elsewhere herein, the shoes 2H, 2J, 2K may include all similar features and aspects of the other shoes described herein and all such features, aspects and characteristics are incorporated for all shoes described herein.

[0057] Referring to FIGS. 16 and 17, still another shoe 2L is shown wherein the same or similar reference numbers refer to the same or similar structure specifically incorporated here. The shoe 2L includes an intermediate element 80 having a rear recess wall 82 which forms a rear recess 84 and a front recess wall 86 forming a front recess 88. A first part 24L and a second part 26L may lock together at a first location 90 and/or a second location 92 via the intermediate element 80 using any suitable mechanism including any of those mentioned herein. The following describes use of one or both of the locking locations 90, 92 and that the first and second locking locations 90, 92 may define whether the intermediate element 80 is part of the first part 24 or the second part 26. The first and second parts 24L, 26L are part of a first coupling element 22L as described herein.

[0058] The first part 24L includes a rear insert 94 slidably positioned within the rear recess 84 of the intermediate element 80 and a front insert 96 positioned and slidable within the front recess 88 of the intermediate element 80. Both the rear insert 94 and the front insert 96 slide within the respective recesses 84, 88 when and the rear sole 12 moves to the bent position and both change orientation with the respective front and rear portions 4L, 10L of the shoe 2L. The rear insert 94 is attached to the rear sole 12 while the front insert 96 is attached to the front sole 6. Alternatively, a rear insert 94M may be attached to a rear upper 14M as shown in FIG. 18 for shoe 2M. FIG. 19 shows another shoe 2N having a rear insert 94N attached to a rear upper 14N and a front insert 96 coupled to

a front upper **8N**. The biasing force on the front sole **6** and rear heel portion **18** (exerted by the bendable portion **12**) is directed through a portion **25N** of the rear upper and a portion **27N** of the front upper **8N** as described above. Yet another shoe **2P** is shown in FIG. **20** in which a rear insert **94P** is coupled to the rear sole **12** while a front insert **96P** is coupled to a front upper **8P**. Once again the same or similar reference numbers shall refer to the same or similar structure and shall expressly incorporate all characteristics for each shoe.

[0059] Referring again to FIGS. **16** and **17**, the intermediate element **80** may be considered part of the second part **26L**, **26M**, **26N**, **26P** when the first and second parts lock together at the first locking location **90** in that the boundary defining the relationship between the first part and the second part is determined, at least in part, by the first locked location **90**. When the intermediate element **80** is considered part of the first part **24**, the rear recess **84** and the rear insert **94** are considered the “first recess” and the “first insert” in that these parts define the sliding intersection of the first and second parts **24P**, **26P**. Similarly, the front recess **88** and the front insert **96** are considered the “second recess” and “second insert.”

[0060] When the second locking location **92** is provided, the intermediate element **80** may be considered part of the first part **24P**. Consequently, the front recess **88** and the front insert **96** are considered the “first recess” (as part of the first part **24P**) and the “first insert” (as part of the second part **24P**) since the second locking location **92** primarily defines the intersection in the sliding relationship between the first and second parts. The intermediate element **80** may, of course, be locked at both the first and second locking locations **90**, **92** (and even more without departing from the scope of the invention similar to shoe **2D** of FIG. **10**). When locked at two (or more) locations in this manner, the intermediate element **80** may be defined as part of either the first part **24L**, **24M**, **24N**, **24P** or the second part **26L**, **26M**, **26N**, **26P** without departing from the scope of the invention.

[0061] Referring to FIG. **21**, still another shoe **2Q** is shown having another intermediate element **80Q** wherein the same or similar reference numbers refer to the same or similar structure. The intermediate element **80Q** has a rear insert **94Q** and a front insert **96Q**. The front insert **94Q** is slidably positioned within a front recess **88Q** and the rear insert **94Q** is slidably positioned in a rear recess **84Q**. The front recess **88Q** is formed by a front recess wall **98Q** that may be attached to the front portion **4Q** (such as the front upper **8Q** or the front sole **6**) and the rear recess **84Q** is formed by a rear recess wall **100Q** attached to the rear upper **14Q** or the rear sole **12**.

[0062] The intermediate element **80Q**, like the intermediate element **80** above, may also be locked at a first locking location **90Q** and/or a second locking location **92Q**. Also similar to the embodiment described above, when the first locking location **90Q** is used, the intermediate element **80Q** may be considered part of a second part **26Q**. As such, the rear recess **84Q** and the rear insert **94Q** are considered the “first recess” and the “first insert” as used herein which define the sliding interaction between the first and second parts **24Q**, **26Q**. When the second locking location **92Q** is used, the intermediate element **80Q** may be considered part of the first part **24Q** so that the front recess **88Q** and front insert **96Q** are considered the “first recess” and “first insert” as defined herein. Of course, the intermediate element **80Q** may be locked at both the first and second locking locations **90Q**, **92Q** (or more such as in FIG. **10**). When locked at two (or more) locations, the

intermediate element **80Q** may be considered part of either the first part **24Q** or the second part **26Q** as defined herein. The rear recess wall **100** is attached to the rear sole **12** and the front recess wall **98** is attached to the front sole **6** so that the biasing force of the bendable portion **16** of the rear sole **12** is transferred directly to the rear recess wall **100** and the front recess wall **98** as described herein.

[0063] Additional shoes **2R**, **2S**, **2T** using the intermediate element **80Q** are shown in FIGS. **22-24** wherein the same or similar reference numbers refer to the same or similar structure and each being defined (such as the first insert and first recess) in accordance with the discussion above. FIG. **22** shows shoe **2R** having a rear recess wall **110** (forming a rear recess **111**) attached to a rear upper **14R** and a front recess wall **112** (forming a front recess **113**) coupled to a front upper **8R**. Shoe **2S** of FIG. **23** has a rear recess wall **100S** (forming rear recess **101**) attached to a rear upper **14S** while a front recess wall **112S** (forming front recess **113**) is attached to a front sole **6**. Shoe **2T** of FIG. **24** has a rear recess wall **110T** (forming rear recess **111T**) coupled to the rear sole **12** while a front recess wall **112T** (forming front recess **113T**) is coupled to a front upper **8T**. Each of these shoes **2R**, **2S**, **2T** includes features of similar embodiments above when describing the same or similar structure. For example, the biasing force exerted by the bendable portion **16R**, **16S**, **16T** through a portion of the rear or front upper **25**, **27** is similar to embodiments described above. Furthermore, each shoe includes a mouth that may be enlarged when in the bent position as also described above.

[0064] Although the intermediate elements **80**, **80Q** have been described with reference to embodiments having two inserts or two recesses, the intermediate element **80**, **80Q** may also include a recess at one end and an insert at the other end without departing from the invention. Furthermore, the intermediate element **80**, **80Q** may be considered part of the first part **24** or the second part **26** thereby providing at least two parts for the first part or second part. In this regard, the first part and the second part may clearly be formed in more than two parts without departing from the scope of the invention.

[0065] Referring to FIGS. **25** and **26**, another shoe **2U** is shown wherein the same or similar reference numbers refer to the same or similar structure. The shoe **2U** has a front portion **4U** including the front sole **6** and a front upper **8U**. The shoe **2U** also includes a rear portion **10U** coupled to the front portion **4U**. The rear portion **10U** has the rear sole **12** and a rear upper **14U** attached to the rear sole **12**. The rear sole **12** includes the bendable portion **16** and the rear heel portion **18**.

[0066] The shoe **2U** has a first coupling element **22U** extending between the front portion **4U** and the rear portion **10U**. The first coupling element **22U** has a first part **24U** coupled to the rear portion **10U** and a second part **26U** coupled to the front portion **4U**. The first part **24U** and the second part **26U** slide relative to, and against, one another when the rear sole **12** moves to the bent position. The rear portion **10U**, and in particular the bendable portion **16** of the rear sole **12**, is configured so that the rear sole **12** may be manually manipulated into the bent position and, together with the front sole **6**, will permit the shoe **2U** to rest in a stable upright position when placed on the ground.

[0067] The first part **24U** has a first insert **38U** and the second part **26U** has a first recess wall **34U** that forms a first recess **36U**. The first insert **38** is positioned in (and slidable within) the first recess **36U**. The first insert **38U** slides within the first recess **36U** when the rear sole **12** moves to the bent

position. The first insert **38U** may be coupled to the rear upper **14A** so that the biasing force is transferred from the rear sole **18** to the first recess wall **34U** through a portion **25U** of the rear upper **14U** positioned between the first insert **38U** and the rear sole **12U** (and specifically the rear heel portion **18**). Similarly, the first recess wall **34U** may be coupled to the front upper **8U** so that a biasing force is transferred to the first recess wall **34U** through a portion **27U** of the front upper **8U** positioned between the first recess wall **34U** and the front sole **6**.

[0068] As mentioned above, the first part **24U** and the second part **26U** automatically move to the locked position when the shoe **2U** is manipulated into the bent position of FIG. **26**. The locked position prevents further relative sliding between the first and second parts **24U**, **26U**. The locked position is automatically overcome when the wearer steps onto the front and/or rear sole **6**, **12**. The mouth **40** of the shoe **2U** may be enlarged in the manner described herein and all features and characteristics related to enlarging the mouth **40** in the bent position are incorporated here as with all other shoes described herein. The shoe **2U** may also include the second coupling element **42** (see FIGS. **8** and **9**) as described herein.

[0069] The first part **24U** and the second part **26U** may lock together in any suitable manner. For example, the first part **24U** and/or the second part **26U** may include a plurality of protrusions **50U**. The protrusions **50U** are compressed (or compressed together when provided on both the first and second parts **24U**, **26U**) to lock the first and second parts **24U**, **26U** together. The protrusions **50U** may also engage one another to hold the shoe **2U** in the relaxed position as well.

[0070] The first part **24U** is pivotally coupled to the rear portion **10U** such as to the rear upper **14U**. To this end, the first part **24U** may include a pin **104** that permits the first part **24U** to pivot relative to the rear portion **10U**. The second part **26U** may also be pivotally coupled to the front portion **4U** of the shoe **2U** with a pin **106** that permits the second part **26U** to pivot relative to the front upper **8U**.

[0071] The rear upper **14U** may include a rear pocket wall **120** that forms a rear pocket **122**. The rear pocket wall **120** and the front pocket wall **124** are partially removed in FIG. **26** for clarity. The first part **24U** is positioned in the rear pocket **122** and sweeps through the rear pocket **122** when the rear sole **6** moves to the bent position. Similarly, the front upper **8U** has a front pocket wall **124** that forms a front pocket **126**. The second part **26U** is positioned in the front pocket **126** and sweeps through the front pocket **126** when the rear sole **6** moves to the bent position. The rear pocket wall **120** and the front pocket wall **124** are in contact with one another when the rear sole **6** is in the relaxed position.

[0072] As used herein, the term “insert” as used for one embodiment shall include all characteristics of any of the other inserts described herein including the interaction with the recess, recess wall and front and rear portions. For example, any insert described herein may automatically lock when manipulated to the bent position. Another example is that the insert may be attached to the rear sole so that the biasing force is transferred directly to the insert shall be equally applicable to all other shoes and such descriptions and features are expressly incorporated for all shoes described herein.

[0073] The present invention has been described with respect to various preferred features and embodiments, however, it is understood that numerous modifications may be made without departing from the scope of the invention. For

example, the rear upper may be one or more straps which are continuous with the coupling element or the shoe may contain fasteners without departing from some aspects of the present invention.

1. A shoe, comprising:

a front portion including a front sole and a front upper, the front upper being attached to the front sole and extending over the front sole and configured to extend over a foot of a wearer;

a rear portion attached to the front portion, the rear portion having a rear sole and a rear upper attached to the rear sole, the rear upper and the rear sole configured to support a heel of the wearer, the rear sole having a bendable portion and a rear heel portion, the bendable portion being resilient and bendable from a relaxed position to a bent position so that the rear sole is bent relative to the front sole, the bendable portion being in a biased condition when in the bent position so that the bendable portion is biased toward the relaxed position when in the bent position; and

a first coupling element extending between the front portion and the rear portion, the first coupling element having a first part and a second part, the first part coupled to the rear portion and the second part coupled to the front portion, the first part and the second part sliding relative to one another when the rear sole moves from the relaxed position to the bent position, the first part and the second part automatically being in a locked position which prevents further relative sliding between the first part and the second part when the rear sole is in the bent position, the locked position being overcome when the wearer steps onto at least one of the front sole and the rear sole.

2. The shoe of claim 1, wherein:

the first coupling element is compressed when the rear sole is in the bent position relative to the front sole and the bendable portion is in the biased condition, the first coupling being compressed between the first part and the second part by a biasing force exerted by the bendable portion of the rear sole.

3. The shoe of claim 1, wherein:

the rear portion is configured with the bendable portion positioned between the rear heel portion and the front sole, the bendable portion being bent so that the front sole and the rear heel sole portion change an angle relative to one another by at least 20 degrees when the bendable portion is in the bent position.

4. The shoe of claim 1, wherein:

the first coupling element is compressed between the front portion and the rear portion by a biasing force exerted by the bendable portion of the rear sole when in the bent position.

5. The shoe of claim 1, wherein:

the front portion is configured with the front sole including a common layer extending continuously from the front sole to the rear sole.

6. The shoe of claim 1, wherein:

the rear portion is configured with the rear sole integrally formed with the front sole.

7. The shoe of claim 1, wherein:

the first coupling element is configured so that the first part and the second part slide against one another when the rear sole moves to the bent position from the relaxed position.

8. The shoe of claim 1, wherein:

the rear portion is configured with the bendable portion positioned between the rear heel portion and the front sole; and

the first coupling element is configured with the first part coupled to the rear sole to change orientation with the rear heel portion when the bendable portion of the rear sole is in the bent position.

9-13. (canceled)

14. The shoe of claim 1, wherein:

the first coupling element includes a first insert and a first recess wall, the first recess wall forming a first recess which is U-shaped when viewed from a lateral direction.

15. The shoe of claim 1, wherein:

the first coupling element bends outwardly in a lateral direction when the rear sole is in the bent position, the lateral direction being defined relative to a shoe orientation.

16. The shoe of claim 1, further comprising:

a mouth into which the wearer's foot is placed, the mouth being formed between the front portion and the rear portion, the mouth being enlarged in a lateral direction by the first coupling element when the rear sole is in the bent position.

17. The shoe of claim 1, wherein:

the rear portion is configured with the rear sole being manually manipulated into the bent position.

18. The shoe of claim 1, wherein:

the rear portion is configured with the rear sole and the front sole shaped to rest stably in an upright position when the rear sole is in the bent position so that the wearer may step onto the at least one of the rear sole and the front sole, wherein the locked position is automatically overcome when the user steps onto the at least one of the front sole and the rear sole.

19. The shoe of claim 1, wherein:

the first coupling element includes a first insert, the first insert being U-shaped when viewed from a lateral direction.

20. The shoe of claim 1, further comprising:

a second coupling element also having a first part and a second part, the first part being coupled to the rear portion and the second part coupled to the front portion; the first coupling element extends along a lateral side between the front portion and the rear portion; and the second coupling element extends along an opposing lateral side from the first coupling element and also extends from the front portion to the rear portion.

21-23. (canceled)

24. The shoe of claim 1, wherein:

the rear portion is configured with the bendable portion positioned between the rear heel portion and the front sole, the rear upper being coupled to the rear heel portion so that the rear upper changes orientation with the rear heel portion, the front upper being coupled to the front sole so that the front upper changes orientation with the front sole when the bendable portion of the rear sole moves to the bent position.

25. The shoe of claim 1, further comprising:

a mouth into which the wearer's foot is placed, the mouth being enlarged in a longitudinal direction and a lateral direction when the rear sole is in the bent position.

26. The shoe of claim 1, wherein:

the rear sole and the rear upper close around the wearer's heel when the user steps onto the front sole.

27. The shoe of claim 1, wherein:

the first coupling element is configured with the first part being locked to the second part in a plurality of discrete positions so that the first part and the second part are slidable to each of the plurality of locked positions by manual manipulation, wherein each of the plurality of locked positions is a stable position and each of the plurality of locked positions may be overcome to move the rear sole back toward the relaxed position when the wearer steps onto the at least one of the rear sole and the front sole.

28. The shoe of claim 1, wherein:

the first coupling element is configured with the second part coupled to the front portion so that the second part changes orientation with the front portion when the rear sole moves to the bent position.

29. The shoe of claim 1, wherein:

the first coupling element is configured with the first part having a first recess wall coupled to the rear portion, the first recess wall forming a first recess, the second part of the first coupling element having a first insert positioned in the first recess, the first insert sliding within the first recess when the rear sole moves to the bent position, the first insert being automatically locked relative to the first recess when the rear sole is moved to the bent position.

30. The shoe of claim 29, wherein:

the first coupling element is configured with the first recess wall of the first part coupled to the rear sole so that a biasing force of the rear sole when the rear sole is in the bent position is transferred from the rear sole to the first recess wall.

31-32. (canceled)

33. The shoe of claim 29, wherein:

the first coupling element is configured with the first insert coupled to the front upper, wherein a biasing force of the rear sole when the rear sole is in the bent position is transferred from the front sole to the first insert through the front upper.

34. The shoe of claim 1, wherein:

the first coupling element is configured so that the first part forms a first insert coupled to the rear portion, the second part having a first recess wall coupled to the front portion and forming a first recess, the first insert being positioned and slidable within the first recess, the first insert sliding within the first recess when the rear sole moves from the relaxed position to the bent position, the first insert being automatically locked relative to the first recess when the rear sole is moved to the bent position.

35. The shoe of claim 34, wherein:

the first coupling element is configured with the first insert coupled to the rear sole so that a biasing force created when the rear sole is in the bent position is transferred from the rear sole directly to the first insert.

36-54. (canceled)

55. The shoe of claim 1, wherein:

the first part of the first coupling element is pivotally coupled to the rear portion.

56-61. (canceled)

62. The shoe of claim 1, wherein:

at least one of the first part and the second part of the first coupling element forms a first insert, wherein the other of the first part and the second part forms a first recess,

the first insert being positioned in and slidable within the first recess when the rear sole moves to the bent position.

63. The shoe of claim **1**, wherein

the first part and the second part of the first coupling element also automatically being in a second locked position when the rear sole is in the relaxed position.

64. The shoe of claim **63**, wherein:

the rear portion is configured to be engaged by an opposing foot, wherein the bendable portion is movable to the bend position when the wearer steps on the rear portion with the opposing foot while pulling up with the foot.

65. The shoe of claim **64**, wherein:

the bendable portion of the rear sole is configured to be moved to the bent position when removing the shoe without manual manipulation by engaging the rear portion with the opposing foot while pulling up with the foot.

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