

TONGUELESS FOOTWEAR WITH A CANOPY**BACKGROUND**

[0001] The present invention relates to systems and methods for securely and comfortably fastening tongueless footwear having a canopy.

[0002] As shown in Figure 1, most shoes, e.g., shoe 100, have sides 110, 120 attached to a sole. The sides 110 and 120 are tightened by a fastening system such as shoelaces or straps 130, 140. These straps 130, 140 hold the foot in place, pulling the toes together thus forming a cocoon comprising the front tongue 150 tucked between the sides 110, 120.

[0003] Traditional front tongue and lacing has been an inexpensive commonly used solution to closing sports and casual shoes but exerts unnecessary top down foot pressure and toes squeezed together that does not allow the foot to move dynamically when walking or running. Another common feature of shoes is a plastic rigid heel counter that has been fashionable but serves no functional purpose in helping the foot move dynamically, often causing heel bone problems with repeated run, walking demands.

[0004] Generally, when allowed and which is natural during load bearing exercises, the foot will splay about 15% in width. Many current shoe designs fail to accommodate such dynamic foot movements. The foot is widest at the toes but most shoes are not which causes toenail damage when the foot swells up and presses against the end of the shoe repeatedly.

[0005] Further, most shoe designs require significant physical dexterity and also require significant time to be secured to the foot. Hence wearing and/or changing shoes can be challenging for young children, physically handicapped persons and competitive sportsmen participating in timed competitions requiring shoe changes, such as triathlons.

[0006] It is therefore apparent that an urgent need exists for tongueless footwear with a canopy that can be easily and comfortably secured to the foot. This improved tongueless footwear can be fastened and removed quickly and permits the foot to function properly and comfortably during use without undue pressure on the foot.

SUMMARY

[0007] To achieve the foregoing and in accordance with the present invention, systems and methods for securely and comfortably fastening tongueless footwear having a canopy is provided.

[0008] In one embodiment, a tongueless footwear includes a sole, a first side, opposing second side, a canopy and a fastening system. The first side and the second side are coupled to the sole. The canopy is coupled to the first side and configured to extend over the second side thereby providing substantially direct support for the ankle and instep of a user. The canopy is further configured to be fastened to the second side. The fastening system is configured to securely fasten the canopy to the second side.

[0009] In some embodiments, the fastening system includes a hook and a corresponding latch. The fastening system can also include a toggle system having a cord and a plurality of anchors, with each of the anchors coupled to either the canopy or the second side. The cord is configured to be operatively coupled to the plurality of anchors thereby securing the footwear to the user. The toggle system can include a tensioner with a dial for controlling tension of the cord. The tongueless footwear can also include an expandable toe box and/or an expandable heel counter.

[0010] Note that the various features of the present invention described above may be practiced alone or in combination. These and other features of the present invention will be described in more detail below in the detailed description of the invention and in conjunction with the following figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] In order that the present invention may be more clearly ascertained, some embodiments will now be described, by way of example, with reference to the accompanying drawings, in which:

[0012] Figure 1 is a perspective view of a casual shoe;

[0013] Figures 2A-2C are perspective views of one embodiment of a canopied shoe, in accordance with the present invention;

[0014] Figure 3 is an engineering diagram illustrating the mechanics of an exemplary toggle system for embodiment(s) of canopied shoe(s), in accordance with the present invention;

[0015] Figures 4, 5A and 5B are perspective views illustrating several toggle systems for alternate embodiments of canopied shoes employing the mechanics of Figure 3; and

[0016] Figures 6 and 7 are perspective views of two additional embodiments of canopied shoes, in accordance with the present invention.

DETAILED DESCRIPTION

[0017] The present invention will now be described in detail with reference to several embodiments thereof as illustrated in the accompanying drawings. In the following description, numerous specific details are set forth in order to provide a thorough understanding of embodiments of the present invention. It will be apparent, however, to one skilled in the art, that embodiments may be practiced without some or all of these specific details. In other instances, well known process steps and/or structures have not been described in detail in order to not unnecessarily obscure the present invention. The features and advantages of embodiments may be better understood with reference to the drawings and discussions that follow.

[0018] The present invention relates to systems and methods for securely and comfortably fastening tongueless footwear having a canopy. To facilitate discussion, Figures 2A, 2B and 2C are perspective views illustrating one embodiment of a tongueless shoe 200 with a shoe side 270, a canopy 280, a fastening system have a canopy fastener 260 and a corresponding side fastener 250. Figure 2A shows the canopy fastener 260 is fastened to the side fastener 250, thereby securing a user's foot (not shown), while Figure 2B shows the canopy fastener 260 detached from the side fastener 250. Finally, Figure 2C shows the canopy 280 in an uplifted position away from shoe side 270 and exposing an upper portion 275 of shoe side 270. In this embodiment, the canopy fastener 260 has a plurality of laddered hooks while the mating side fastener 250 has a latch, thereby enabling the shoe 200 to be adjustably secured to the user's foot.

[0019] Figure 3 is an engineering diagram illustrating the mechanics of an exemplary toggle system for embodiment(s) of canopied shoe(s), as exemplified by shoes 400, 500A and 500B of Figures 4, 5A and 5B, respectively. Toggle anchors points 310, 320, 330, 340, 350 and 360 and fastener 390 are appropriately spaced out to substantially optimize both fit and comfort without intrusion on the foot natural dynamics.

[0020] Referring now to Figure 4, a tongueless canopied shoe 400 includes a shoe side 470, a canopy 480, and a toggle system having a cord 422, a plurality of anchors

411, 412, 413, 414, 415, 416, a canopy fastener 460 and a side fastener 450. In this embodiment, cord 422 is configured to be secured to anchors 411, 412, 413, 414, 415, 416 and attachment 455 of side fastener 450. Depending on the implementation, cord 422 can be a contiguous length of, for example, a nylon string or coated metallic string, threaded through anchors 411, 412, 413, 414, 415, 416 and side fastener 450, or comprised of discreet cord sections coupling anchor pairs 411 & 412, 411 & 413, 412 & 414, 414 & 415, 415 & 416 and 416 & 413, or combinations thereof. Canopy fastener 460 include a hook 465 configured to be securely coupled to a corresponding eye of side fastener 450.

[0021] Figure 5A is a perspective view of a tongueless canopied shoe 500A includes a shoe side 570, a canopy 580, and a toggle system having a cord 422, a plurality of anchors 413, 414, 415, 416, a canopy fastener 560, a side fastener 550 and a cord tensioner 530. In this embodiment, cord 422 is a contiguous string, threaded through anchors 413, 414, 415, 416, attachment 555 of side fastener 550 and tensioner 530. Canopy fastener 560 include a hook 566 configured to be securely coupled to a corresponding eye of side fastener 550. Tensioner 530 is located on shoe side 570 and can include a dial configured to control the tension of cord 422.

[0022] Referring now to the perspective view Figure 5B, a tongueless canopied shoe 500B includes a shoe side 578, a canopy 588, and a toggle system having a cord 522, a plurality of anchors 512, 513, 514, 515, 516, 518, 519, a canopy fastener 565, a side fastener 556 and a cord tensioner 536. In this embodiment, cord 522 is a contiguous string, threaded through anchors 512, 513, 514, 515, 516, 518, 519, side fastener 556, tensioner 536 via tensioner guides 532, 534. Canopy fastener is a hook 565 configured to be securely coupled to a corresponding eye of side fastener 556. Tensioner 536, located on the heel area of shoe 500B, can include a dial configured to control the tension of cord 522.

[0023] Figure 6 is a perspective view of a tongueless canopied shoe 600 with a shoe side 670, a canopy 680, and a fastening system have a canopy fastener 660 and a

corresponding side fastener 650. Canopy fastener 660 includes a hook configured to be securely coupled to a corresponding eye of side fastener 650.

[0024] Referring now to Figure 7, tongueless canopied shoe 700 includes a shoe side 770, a canopy 780, and a fastening system have an integrated buckle.

[0025] In some embodiments, as illustrated by Figures 6 and 7, toe boxes 694, 794 are made from an expandable and breathable material, thereby ventilating with minimal closure over the toes and enables movement of the toes whenever the foot swells. The ability to provide a customizable fit of any kind of heel bone is enabled by stitching expandable material around the heel counters 692, 792 that is expandable, breathable and supportive.

[0026] Modifications and additions to the above described embodiments are possible. For example, anchors for supporting the cord of the toggle system can be rotatably attached the shoe sides so that tensioning forces are more evenly distributed and hence enhance the comfort of the user. Latches can be made from a rigid material such as polycarbonate or from a flexible material such as rubber. Fastening systems can also include adjustable Velcro strap(s).

[0027] Advantageous features of the above described tongueless canopied shoes include a re-configuration of the shoe upper from toe to heel by at least one of (a) providing a one piece canopy, (b) eliminating tongue, (c) elimination of top laces, (d) elimination of rigid heel counters and cramped toe boxes to allow for the natural movement of the dynamic foot under demands of walking, running, cycling, health rehabilitation and constant standing over long periods of time. The one piece canopy in place of traditional tongue and laces allows for very easy entry/exit with minimal effort. Side latching of various methods also enables quick engagement/disengagement of the footwear and with minimal effort.

[0028] Further, the ability to latch from the side around the foot instead of lace from top down on the foot is provided by various closure methods: Rubber latch to a clip on the near top of the foot. In some embodiments, the double helix type configuration of a side lace/cord that slides on a track, with specific points of contact on the side of the

shoe that act to guide the lace/cord. An optional integrated clip with a toggle that allows adjustment after latching.

[0029] While this invention has been described in terms of several embodiments, there are alterations, modifications, permutations, and substitute equivalents, which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, modifications, permutations, and substitute equivalents as fall within the true spirit and scope of the present invention.

CLAIMS

What is claimed is:

1. A tongueless footwear comprising:
a sole;
a first side and an opposing second side, and wherein both the first side and the second side are coupled to the sole;
a canopy coupled to the first side, wherein the canopy is configured to extend over the second side thereby providing substantially direct support for ankle and instep, and wherein the canopy is further configured to be fastened to the second side; and
a fastening system configured to securely fasten the canopy to the second side.
2. The tongueless footwear of claim 1 wherein the fastening system includes a hook and a corresponding latch.
3. The tongueless footwear of claim 2 wherein the latch is rigid.
4. The tongueless footwear of claim 2 wherein the latch is flexible.
5. The tongueless footwear of claim 1 wherein the fastening system includes an adjustable Velcro strap with a clip or an adjustable buckle.

6. The tongueless footwear of claim 1 wherein the fastening system is a toggle system having a cord and a plurality of anchors, wherein each of the anchors is coupled to at least one of the canopy and the second side, and wherein the cord is configured to be operatively coupled to the plurality of anchors thereby securing the footwear.
7. The tongueless footwear of claim 6 wherein the toggle system includes a tensioner.
8. The tongueless footwear of claim 7 wherein the tensioner includes a dial configured to control tension of the cord.
9. The tongueless footwear of claim 1 further comprising an expandable toe box.
10. The tongueless footwear of claim 1 further comprising an expandable heel counter.