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(54) **FOOTWEAR WITH DOUBLE LACING SYSTEM**

(71) Applicant: **DECKERS OUTDOOR CORPORATION**, Goleta, CA (US)

(72) Inventors: **Jean-Luc Diard**, Santa Barbara, CA (US); **Vincent Bouillard**, Ventura, CA (US); **Christophe Aubonnet**, Tresserve (FR); **Thibaut Poupard**, Annecy (FR)

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(52) **U.S. Cl.**

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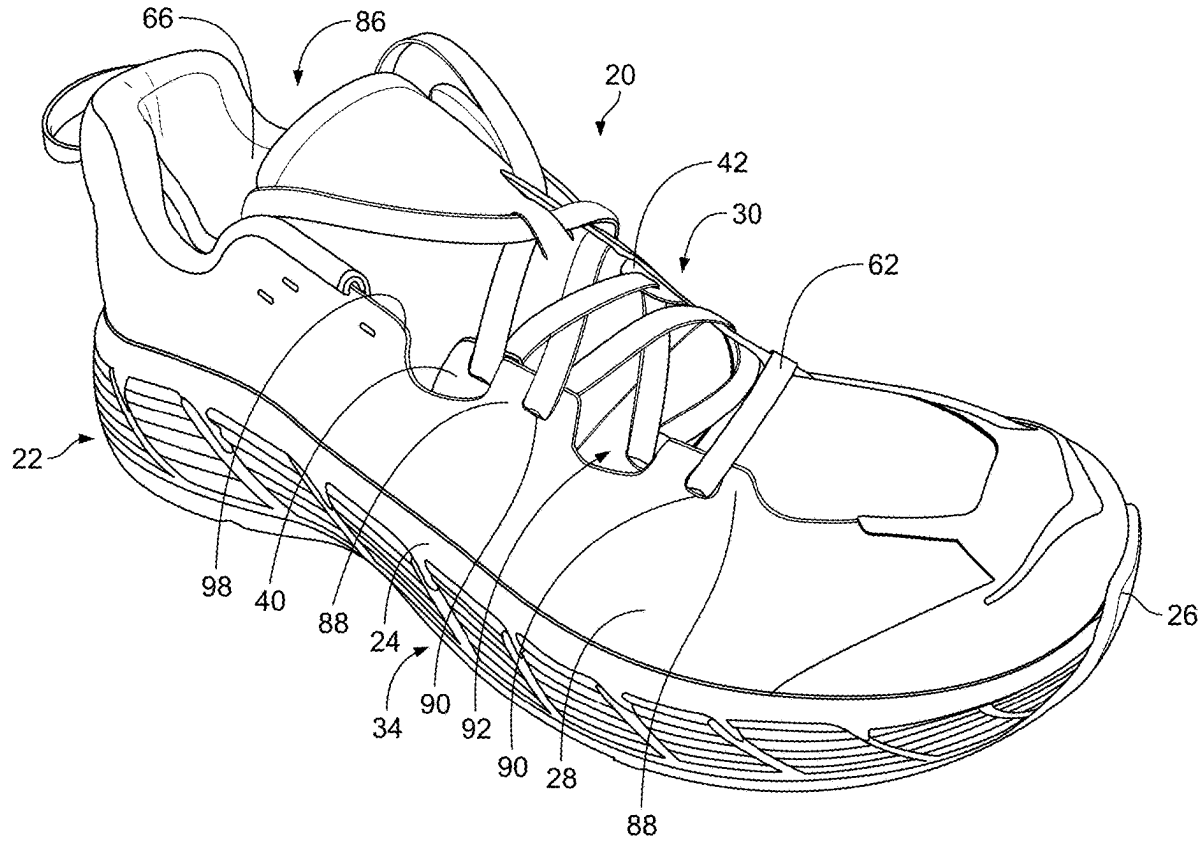
(57) **ABSTRACT**

An article of footwear including a sole, and an upper having a lateral side and a medial side, each including a first lace opening. A lateral lace support and a medial lace support are attached to the sole and positioned adjacent to inner surfaces of the lateral and medial sides of the upper. The lateral lace support has a first length and the medial support has a second length, where the second length is greater than the first length, and each include a second lace opening. A lace is threaded through the first lace openings of the upper and the second lace openings of the lateral lace support and the medial lace support, where an axis extending between the lateral lace support and the medial lace support, after the lace is secured to the upper, is offset from an axis extending from a center of gravity of a user's foot.



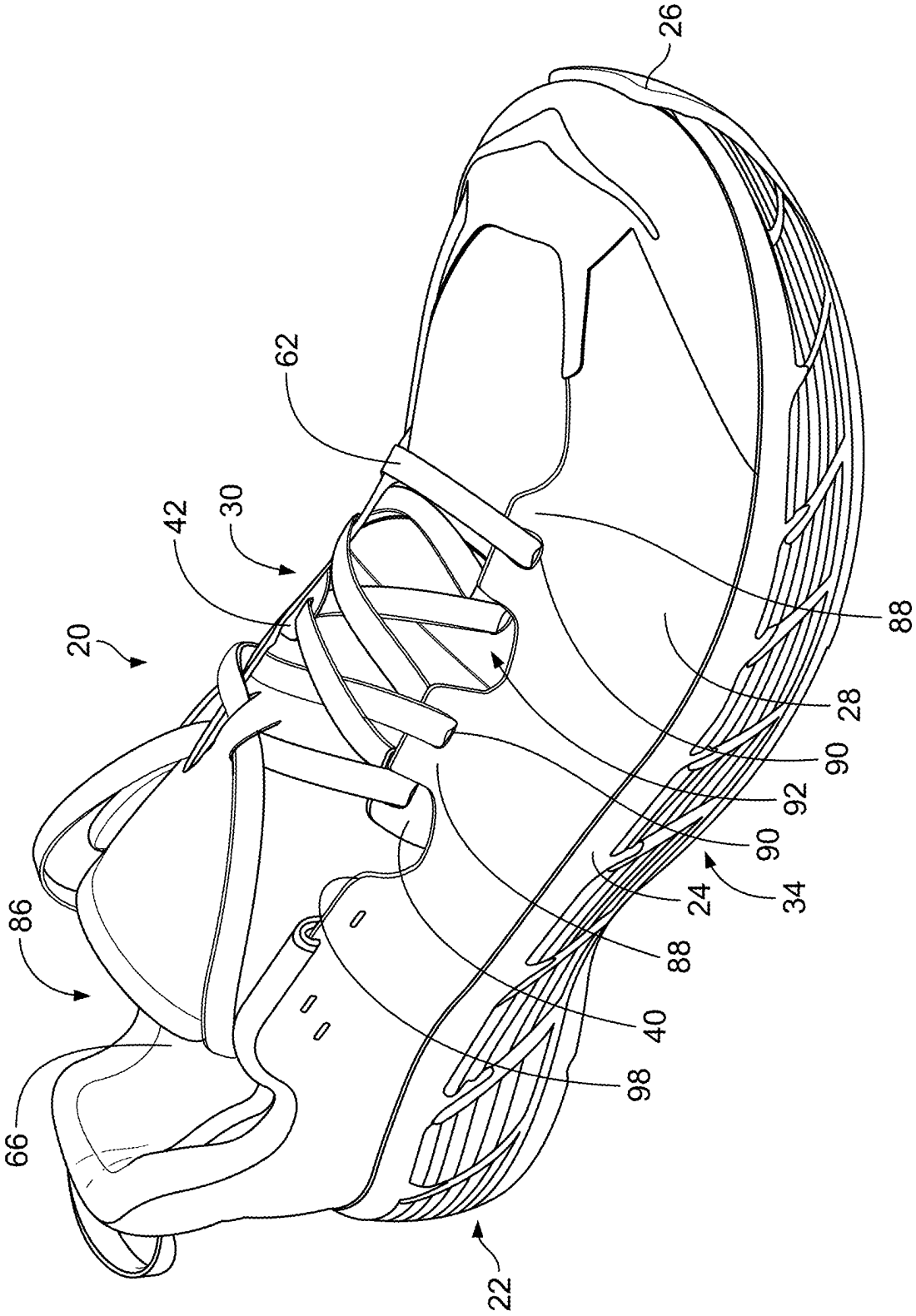


FIG. 1

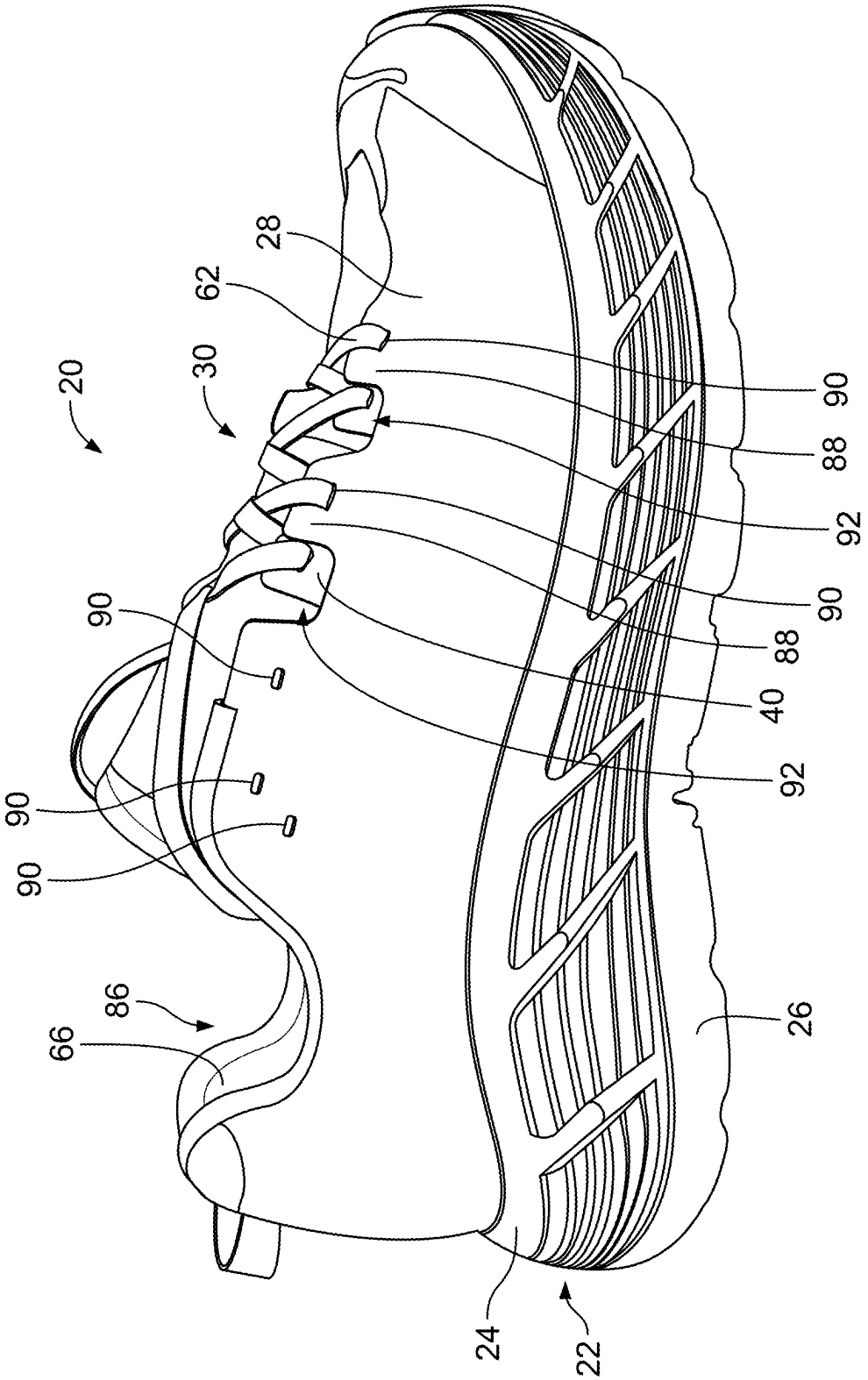


FIG. 2

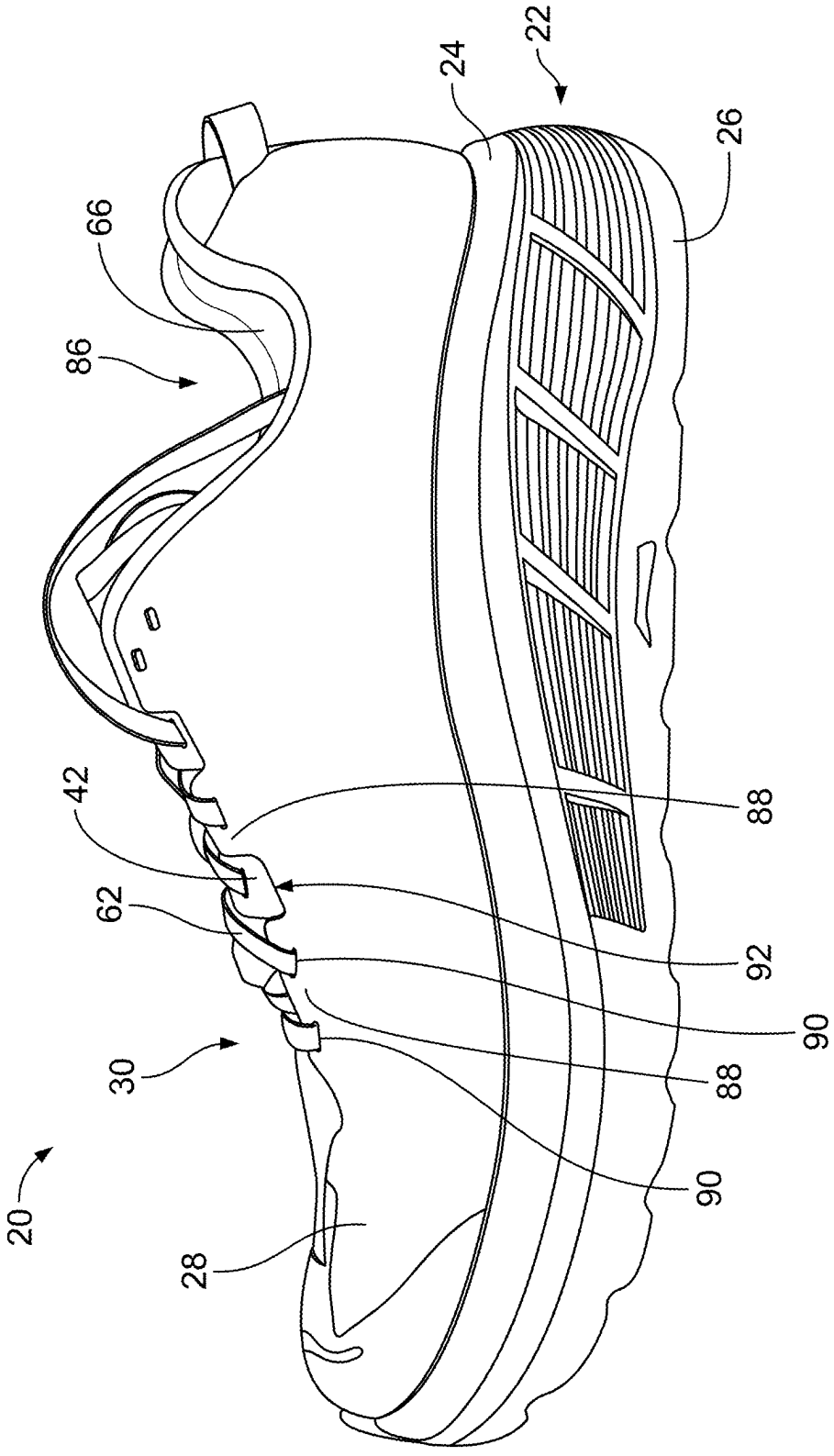


FIG. 3

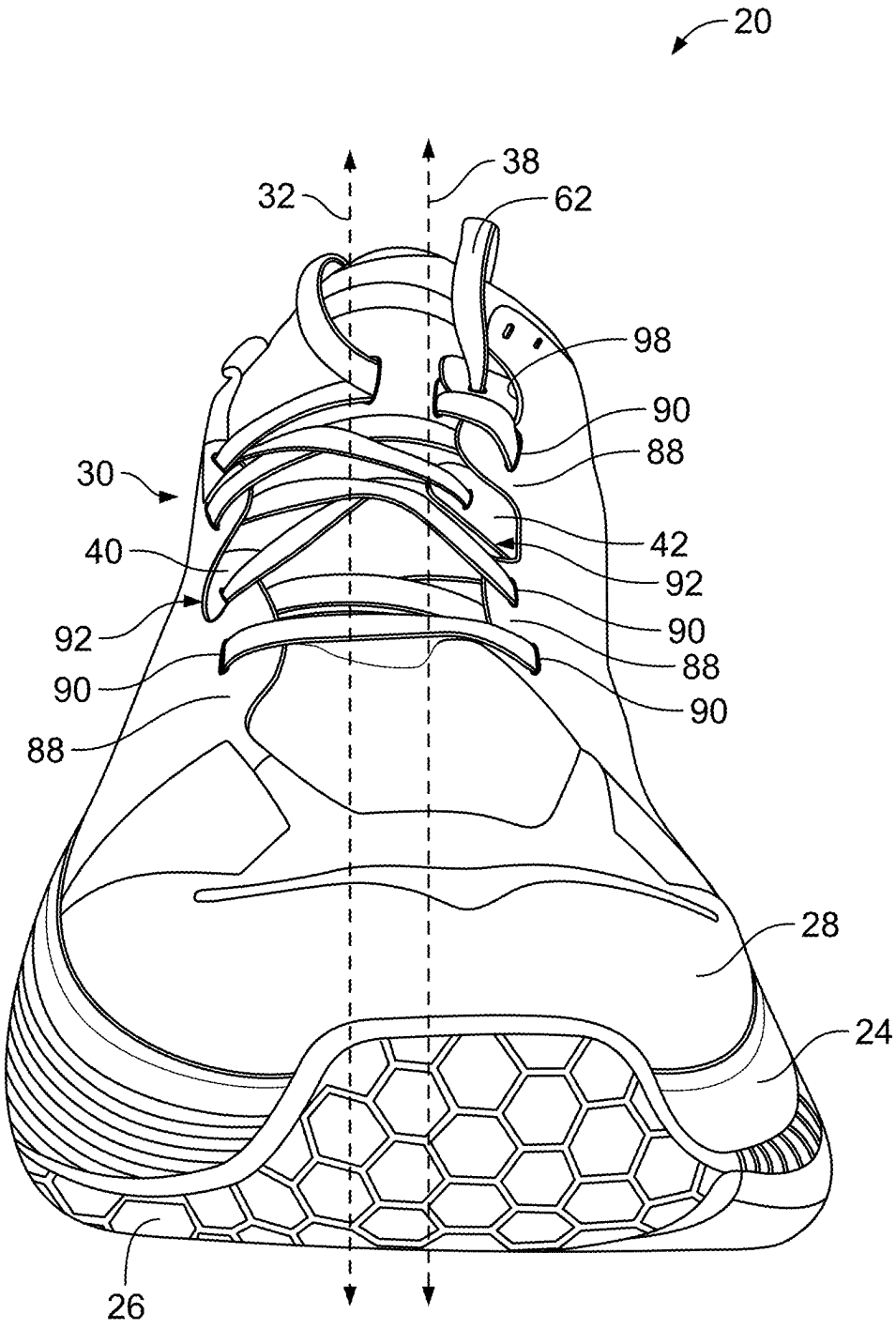


FIG. 4

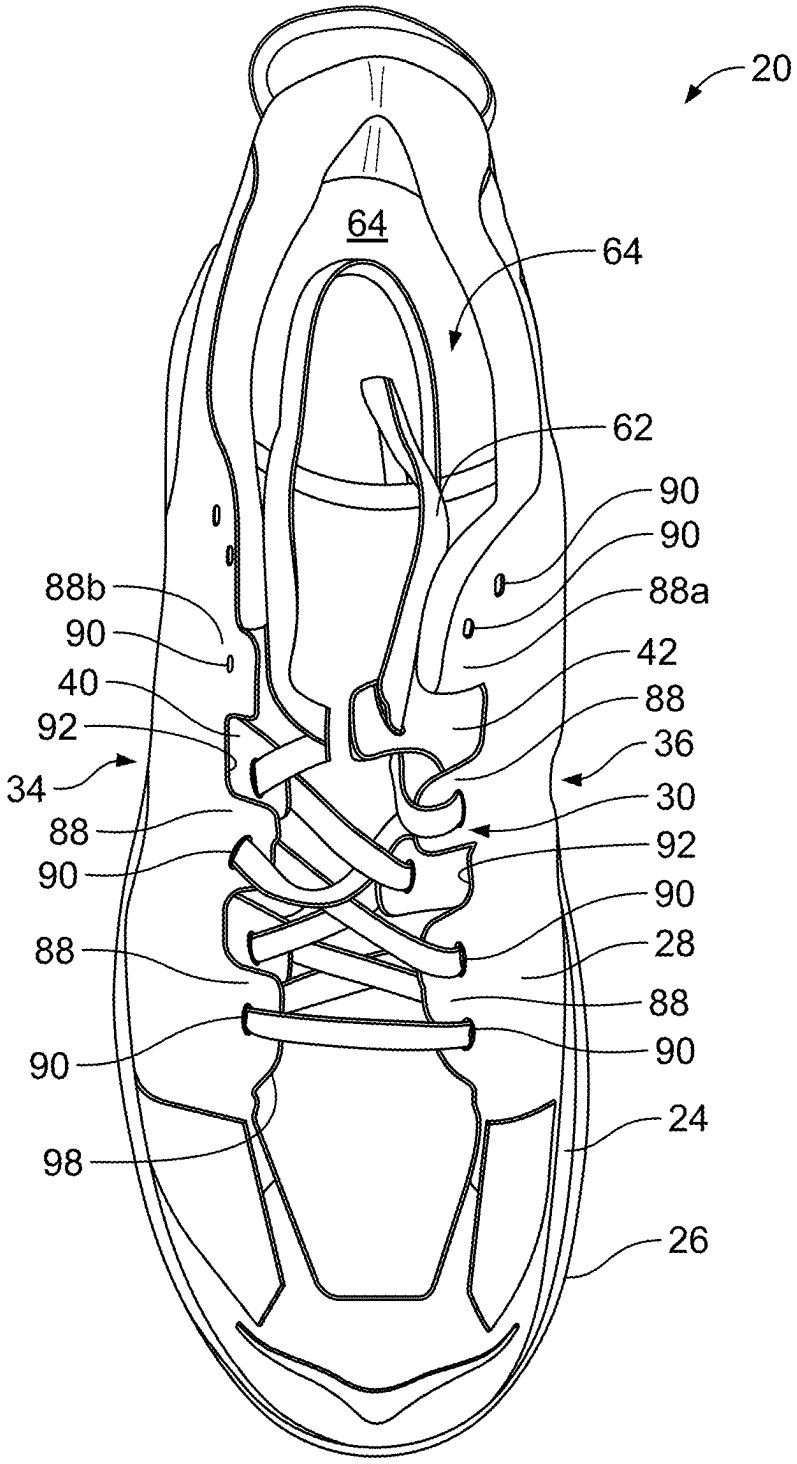

20
64
64
62
90
90
88a
42
88
36
30
92
90
28
88
90
24
26
88b
90
40
92
34
88
90
88
90
98

FIG. 5

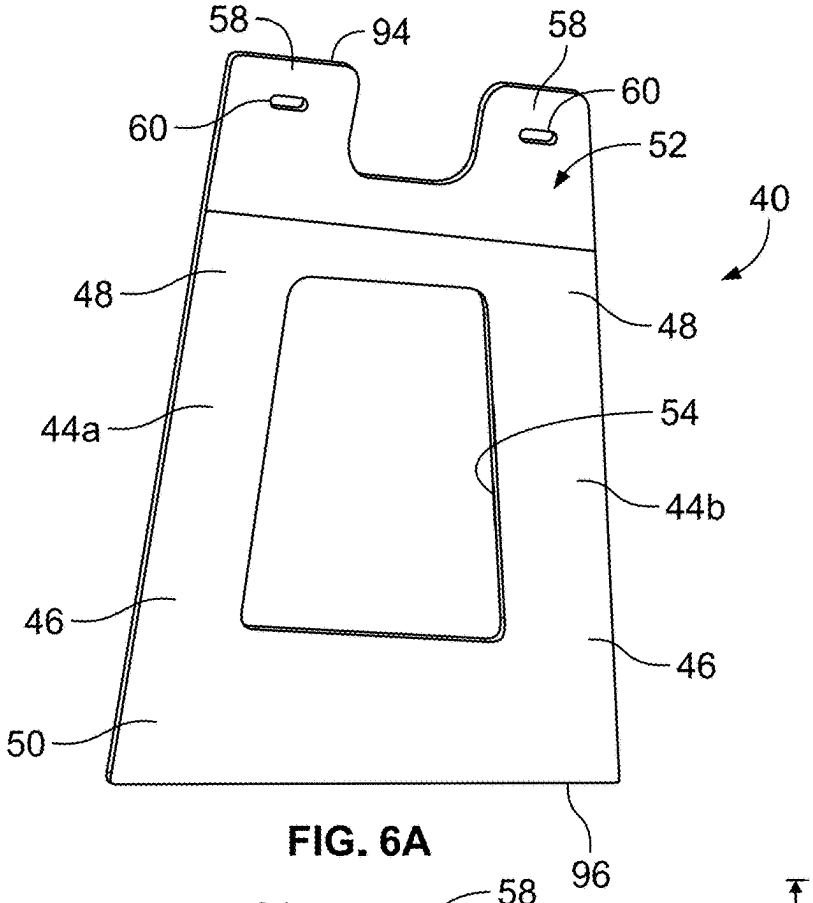


FIG. 6A

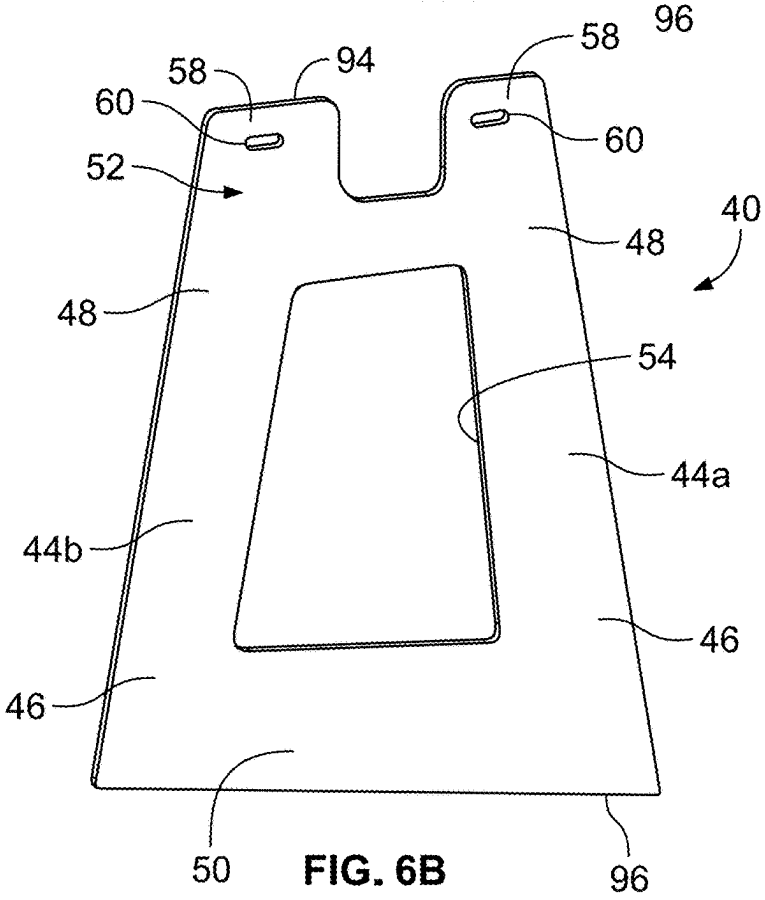


FIG. 6B

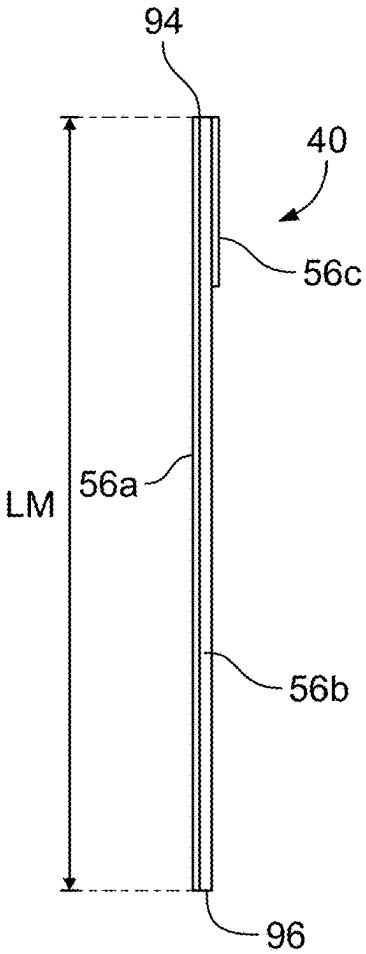


FIG. 6C

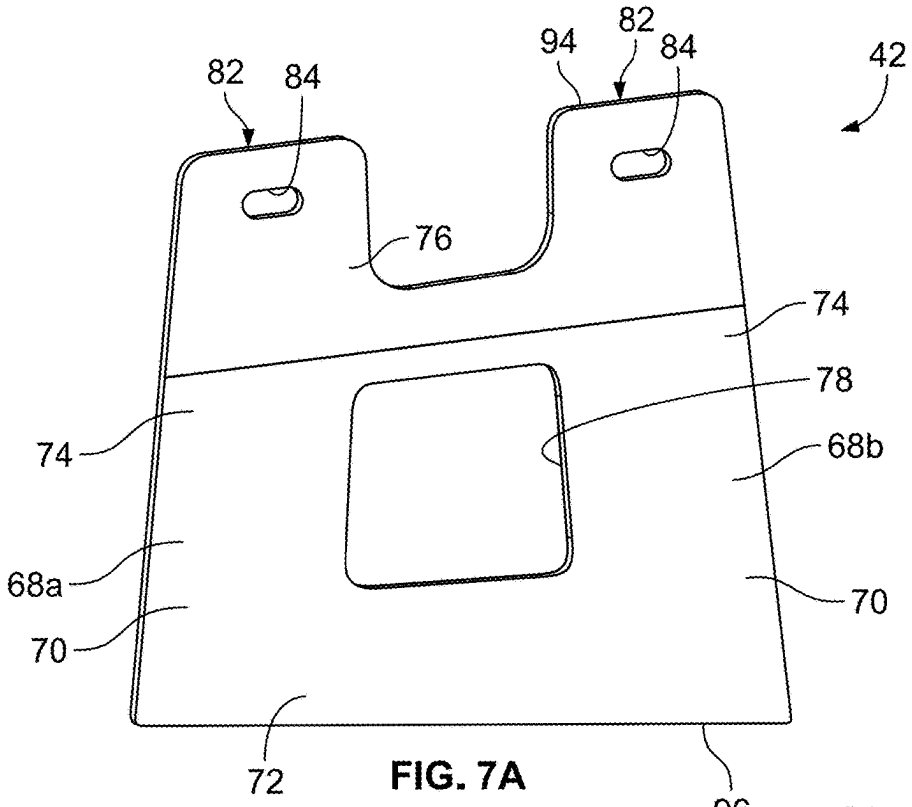


FIG. 7A

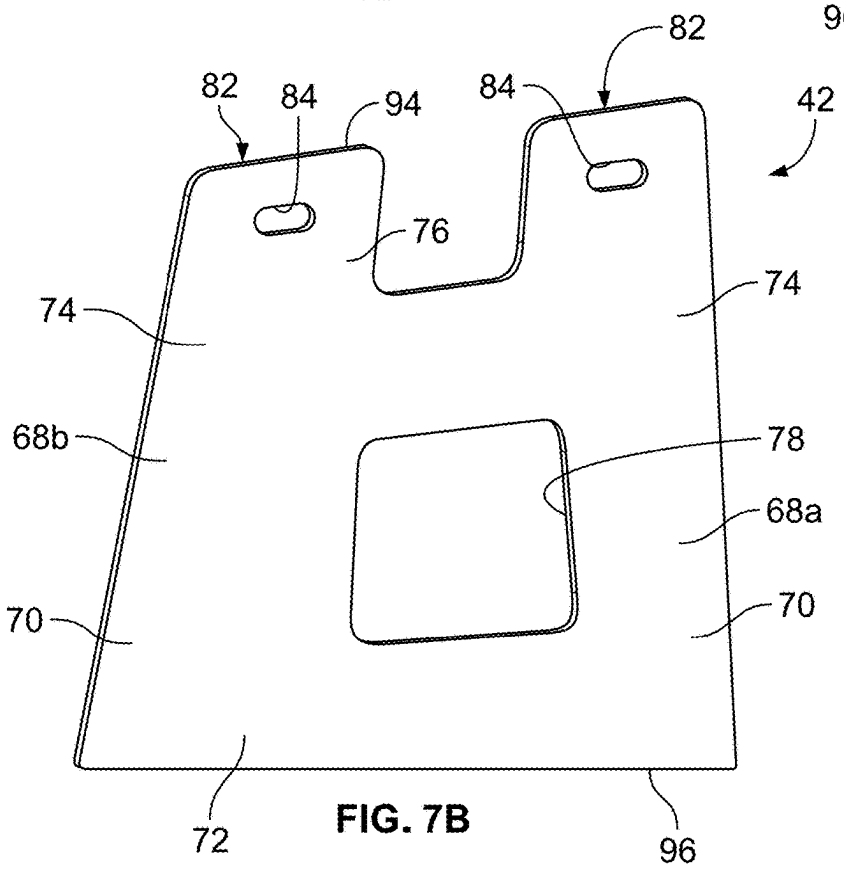


FIG. 7B

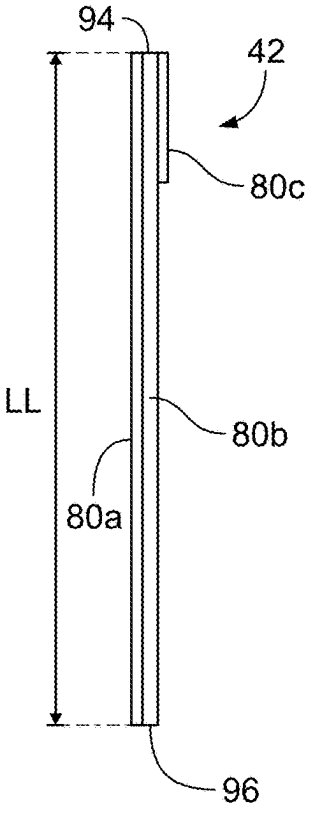


FIG. 7C

FOOTWEAR WITH DOUBLE LACING SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation application of and claims priority to U.S. patent application Ser. No. 17/410,865 filed on Aug. 24, 2021, which is incorporated herein by reference.

BACKGROUND

[0002] The present application relates generally to footwear, and more particularly, to a lacing system for an article of footwear that secures the article of footwear to a user's foot in a way that follows the natural contour and shape of the user's foot to provide enhanced comfort and balance to the user's feet while walking, jogging and running.

[0003] There are different lacing systems for footwear that are aimed at securing the footwear to a user's feet. Traditional lacing systems use a fabric lace in which the ends of the lace are threaded through opposing eyelets in a criss-cross manner on an upper of a shoe and then tied together to keep the laces from loosening. This lacing system requires that the user pull on each end of the lace until a desired tightness of the shoe relative to their foot is achieved.

[0004] Another lacing system includes a lace made of a stretchable material that is threaded through the eyelets of a shoe as described above and the ends of the lace are secured together as a loop. A locking mechanism is attached to the loop and enables a user to pull the loop through the locking mechanism until a desired tightness is achieved. The locking mechanism locks in position on the lace to maintain the desired tightness. The lace is loosened by activated a release device on the locking mechanism. This lacing system provides a quick and easy way to secure a shoe to a user's foot without the chance of the lace becoming untied and loosened during movement as with the traditional lacing system.

[0005] Although these lacing systems are sufficient to secure a shoe to a user's foot, the laces in these systems are configured so that the laces are positioned along the central longitudinal axis of the upper of the shoe. The shape of a human foot, however, is not symmetrical. The laces therefore in conventional lacing systems are not positioned sufficiently along the top of a user's foot to provide enhanced comfort, stability and balance to the user's feet during walking, jogging and running.

[0006] Therefore, it is desirable to provide footwear having a lacing system with laces positioned along the top of a user's foot in which the lacing system follows the natural contour and shape of the user's foot to provide enhanced comfort, stability and balance to the user's feet when wearing the footwear.

SUMMARY

[0007] The present article of footwear has a lacing system that follows the contour and shape of a user's feet to sufficiently secure the footwear to the user's feet while providing enhanced comfort, stability and balance during walking, jogging and running.

[0008] In an embodiment, an article of footwear is provided and includes a sole, and an upper having a lateral side and a medial side, each including a first lace opening. A lateral lace support and a medial lace support are attached to the sole and positioned adjacent to inner surfaces of the lateral and medial sides of the upper. The lateral lace support has a first length and the medial lace support has a second length, where the second length is greater than the first length, and each include a second lace opening. A lace is threaded through the first lace openings of the upper and the second lace openings of the lateral lace support and the medial lace support, where an axis extending between the lateral lace support and the medial lace support, after the lace is secured to the upper, is offset from an axis extending from a center of gravity of a user's foot.

[0009] In another embodiment, an article of footwear is provided that includes a sole and an upper attached to the sole. The upper includes a lateral side and a medial side, where the lateral side and the medial side of the upper each include a plurality of first connecting tabs having a first lace opening, and a lateral lace support and a medial lace support attached to the sole and respectively positioned adjacent to an inner surfaces of the lateral side and the medial side of the upper, where the lateral lace support has a first length and the medial support has a second length, where the second length is greater than the first length, and where the lateral and medial lace supports each include a plurality of second connecting tabs having a second lace opening. In this embodiment, the first connecting tabs of the upper and the second connecting tabs of the lateral and medial lace supports are alternatingly arranged along the lateral and medial sides of the upper. A lace is threaded through the first lace openings of the first connecting tabs and the second lace openings of the second connecting tabs to secure the lace to the upper, where an axis extending between the lateral lace support and the medial lace support, after the lace is secured to the upper, and the lateral and medial lace supports, is offset from an axis extending from a center of gravity of a user's foot.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is a perspective view of an embodiment of the present lacing system on an article of footwear.

[0011] FIG. **2** is a right side view of the article of footwear of FIG. **1**.

[0012] FIG. **3** is a left side view of the article of footwear of FIG. **1**.

[0013] FIG. **4** is a front view of the article of footwear of FIG. **1**.

[0014] FIG. **5** is a top view of the article of footwear of FIG. **1**.

[0015] FIG. **6**A is rear view of the medial lace support of the present lacing system.

[0016] FIG. **6**B is front view of the medial lace support of FIG. **6**A.

[0017] FIG. **6**C is a side view of the medial lace support of FIG. **6**A.

[0018] FIG. **7**A is rear view of the lateral lace support of the present lacing system.

[0019] FIG. **7**B is front view of the lateral lace support of FIG. **7**A.

[0020] FIG. **7**C is a side view of the lateral lace support of FIG. **7**A.

DETAILED DESCRIPTION

[0021] The present article of footwear includes a lacing system attached to an upper that positions a lace on the foot

such that the lace mirrors the asymmetrical shape of the foot thereby providing enhanced comfort and stability to the foot. More specifically, the present lacing system includes a lace threaded through side lace supports that are asymmetrical along the longitudinal axis of the article of footwear or shoe. In other words, the lace is positioned on the shoe so that the central axis of the lacing system, i.e., the axis extending through the points where the lace crosses over itself, is located closer to the lateral side than the medial side of the shoe.

[0022] Referring now to FIGS. **1**-**7**C, an embodiment of the present article of footwear or shoe, generally indicated as **20**, includes a sole **22** having a midsole **24** and an outsole **26**, and an upper **28** attached to the sole. As stated above, a lacing system **30** is secured to the upper **28** so that an axis **32** of the lacing system **30** is located closer to the lateral side **34** than the medial side **36** of the shoe **20** to mirror the contour and shape of a user's foot, where a greater portion of the user's foot is located toward the lateral side than the medial side relative to the axis **38** extending through the center of gravity of the user's foot. The configuration of the axis **32** of the lacing system **30** being offset from the axis **38**, i.e., a distance from the axis **38** toward the lateral side **34** of the shoe **20**, enhances the comfort and stability to the user's foot since the upper **28** more closely follows the contour and shape of the user's foot.

[0023] Referring to FIGS. **6**A and **7**A, the present lacing system **30** includes a medial lace support **40** and a lateral lace support **42**. As shown, the medial lace support **40** has two support members **44***a* and **44***b*, each having a first end **46** and a second end **48**. The first ends **46** of the support members **44***a*, **44***b* are attached to a base **50** and the opposing second ends **48** are attached to a lace support member **52**.

[0024] In FIGS. **6**A, **6**B and **6**C, the medial lace support **40** includes a central opening **54** that decreases the material needed to make the medial lace support while providing sufficient flexibility for the medial lace support to extend along and over a user's foot. In the illustrated embodiment, the medial lace support **40** is made of three material layers **56***a*, **56***b* and **56***c*. The first material layer **56***a* is made of a stretchable material, that extends along the entire length LM (distance between the base **50** and the highest point of the lace support member **52**) of the medial lace support **40**. In an embodiment, the first material layer **56***a* is a thin rubber layer. The second material layer **56***b* is attached to the first material layer **56***a* by adhesive, stitching or another suitable attachment method. The second material layer **56***b* is preferably a nylon material that extends along the entire length LM of the medial lace support **40** to provide sufficient support and strength for the medial lace support. To reinforce the end of the medial lace support **40**, a third material layer **56***c* is attached to the second material layer **56***b* along a portion of the lace support member **52**. As shown in FIG. **6**A, the lace support member **52** includes a pair of spaced apart connecting tabs **58** with lace openings **60** through which a shoelace or lace **62**, is threaded along the upper **28**. The third material layer **56***c* is preferably a thin rubber material that provides flexibility and enhanced support to the lace support member **52** to help withstand the forces generated by the threading and tightening of the lace **62** relative to the medial lace support **40**. It should be appreciated that the first, second and third material layers **56***a*, **56***b* and **56***c*, may be any suitable material or combination of materials. In this embodiment, the base **50** of the medial lace support **40** at least partially extends under the footbed **64** and is secured to at least one of the footbed and sole **22** by stitching. Additionally, at least a portion of the base **50** is secured to at least one of the footbed **64**, midsole **24** and an inside surface **66** of the upper **28** by an adhesive.

[0025] Referring to FIGS. **7**A, **7**B and **7**C, the lateral lace support **42** is similar to the medial lace support **40**, and includes two support members **68***a* and **68***b*. A first end **70** of the support members **68***a*, **68***b* is attached to a base **72** and a second, opposing end **74** is attached to a lace support member **76**. A central opening **78** is formed in the lateral lace support **42** to reduce the material of the lateral lace support while providing flexibility to enable the medical lace support to conform to and stretch over the user's foot. As shown in FIG. **7**C, the lateral lace support **42** is made of three material layers **80***a*, **80***b* and **80***c*. The three material layers **80***a*, **80***b* and **80***c* are the same material layers that form the lateral lace support **42**. Specifically, the first material layer **80***a* is made of a thin rubber material and extends along the entire length LL (distance between the base **72** and the highest point of the lace support member **76**) of the lateral lace support **42**. The second material layer **80***b* is made of a nylon material that is attached to the first material layer **80***a* by an adhesive, stitching or another attachment method, and extends along the length LL of the lateral lace support **42**. The third material layer **80***c* is made of a thin rubber material and is attached to the second material layer **80***b* along a portion of the lace support member **76**. As shown in FIGS. **7**A and **7**B, the lace support member **76** includes two spaced connecting tabs **82**, each having a lace opening **84**, through which the lace **62** is threaded and secured to the lateral lace support **42**. It should be appreciated that the first, second and third material layers **80***a*, **80***b* and **80***c* forming the lateral lace support **42** may be any suitable material or combination of materials. At least a portion of the base **72** of the lateral lace support **42** extends at least partially under the footbed **64** and is attached to at least one of the footbed **64**, the sole **22** and the inner surface of the upper by stitching, an adhesive or another suitable attachment method.

[0026] In the embodiments of the medial and lateral lace supports **40**, **42** discussed above, the medial and lateral lace supports each include a top edge or top surface **94** and a bottom edge or bottom surface **96**, where the top edge and the bottom edge are not parallel to each other. This configuration enables the bottom edges **96** of the medial and lateral lace supports **40**, **42** to align with and be secured to the footbed **64** and sole **22** of the shoe **20**, and the top edges **94** to align with the longitudinal opening **98** in the shoe **20** extending from the foot opening **86**. It should be appreciated that the top edges **94** of the medial and lateral lace supports may be parallel to the bottom edges **96** or at any suitable angle relative to the bottom edges **96** of the medial and lateral lace supports.

[0027] To closely follow the contour and shape of a user's foot, the medial lace support **40** is positioned closer to the foot opening **86** of the shoe **20** than the lateral lace support **42**. In this way, the medial lace support **40** and the lateral lace support **42** are asymmetrical relative to each other along the axis **38** of the shoe **20**. Furthermore, the length LM of the medial lace support **40** is greater than the length LL of the lateral lace support **42**. The asymmetrical positioning and the longer length of the medial lace support **40** positions the medial lace support over at least a portion of the top of a user's foot such that the axis **32** of the lacing system **30** is

closer to the lateral side **34** than the medial side **36** of the shoe **20** as shown in FIGS. **4** and **5**.

[0028] In the illustrated embodiment, opposing sides **34** and **36** of the upper **28** include lace connecting tabs **88** that are spaced apart along the length of the upper. Each of the lace connecting tabs **88** includes a lace opening **90** for receiving the lace **62**. The end lace connecting tab that is closest to the foot opening **86** includes three lace openings **90** for adjusting the position of the lace **62** relative to a user's ankle. In this way, the fit of the shoe **20** on the user's foot may be adjusted to enhance comfort and stability. It should be appreciated that the lace connecting tabs **88** may each have one or more lace openings **90**. For example, as shown in FIG. **5**, the first lace connecting tab **88***a* on the medial side **36** of the shoe **20** includes two lace openings **90** whereas the first lace connecting tab **88***b* on the lateral side **34** of the shoe **20** includes one lace opening **90**.

[0029] As shown in FIGS. **1-3** and **5**, the medial and lateral lace supports **40**, **42** are positioned and attached to the shoe **20** so that the connecting tabs **58**, **82** of the medial and lateral lace supports **40**, **42** are located in the spaces **92** between the connecting tabs **88** on the opposing sides of the upper **28**. In this way, the medial and lateral lace supports **40**, **42** extend along the inside surfaces **66** of the sides **34**, **36** of the upper **28** and provide additional support to the sides of the upper. It should be appreciated that the connecting tabs **58**, **82** of the medial and lateral lace supports **40**, **42** may be positioned in the spaces **92** between the connecting tabs **88** of the sides of the upper **28** or be positioned in the same locations as the connecting tabs **88** to reinforce the connecting tabs **88** and provide enhanced strength and durability to the connecting tabs of the upper. It should be further appreciated that the medial and lateral lace supports **34**, **36** may include one or a plurality of connecting tabs **58**, **82** depending on the length of the shoe **20** and/or the desired stability and support of the shoe on a user's foot.

[0030] In the above embodiments, the shoe **20** has one medial lace support **40** and one lateral lace support **42**. It is contemplated that the shoe **20** may include one or a plurality of medial and lateral lace supports **40**, **42** along the length of the upper. Further, each medial and lateral lace support may include one or a plurality of the connecting tabs **58**, **82** for securing the lace **62** to the upper **28** of the shoe **20**.

[0031] While particular embodiments of the present lacing system are shown and described, it will be appreciated by those skilled in the art that changes and modifications may be made thereto without departing from the invention in its broader aspects and as set forth in the following claims.

What is claimed is:

1. An article of footwear comprising:

a sole;

an upper attached to said sole, said upper including a lateral side and a medial side, said lateral side and said medial side of said upper each including a plurality of lace connecting tabs, wherein each of said lace connecting tabs include at least one first lace opening, said lace connecting tabs being spaced from each other and defining open-ended spaces between said lace connecting tabs;

a lateral lace support and a medial lace support attached to said sole and respectively positioned adjacent to an inner surface of said lateral side and said medial side of said upper, said lateral lace support and said medial lace support being positioned in said open-ended spaces of said lateral side and said medial side of said upper, said lateral lace support having a first length and said medial support having a second length, wherein said second length is greater than said first length, and

said lateral and medial lace supports each including two support connecting tabs that are spaced apart, and said two support connecting tabs each have at least one second lace opening; and

a lace threaded through said at least one first lace opening of said lateral side and said medial side of said upper and through said at least one second lace opening of said lateral lace support and said medial lace support, wherein after said lace is secured to said upper and said lateral and medial lace supports, a first longitudinal axis extending between said lateral lace support and said medial lace support and through all points where said lace crosses over itself, is offset from a second longitudinal axis extending between a medial side and a lateral side of said sole and along a center of gravity of a user's foot.

2. The article of footwear of claim **1**, wherein said lateral lace support and said medial lace support each include two connecting tabs spaced from each other, each of said two connecting tabs having said at least one second lace opening.

3. The article of footwear of claim **1**, wherein said lace support member includes a pair of connecting tabs, each of said connecting tabs having at least one of said second lace openings.

4. The article of footwear of claim **1**, wherein said lateral lace support and said medial lace support are each formed by three material layers.

5. An article of footwear comprising:

a sole;

an upper attached to said sole, said upper including a lateral side and a medial side, said lateral side and said medial side of said upper each including a plurality of first connecting tabs each having a first lace opening, said plurality of first connecting tabs being spaced apart and defining a plurality of open-ended spaces between said first connecting tabs;

a lateral lace support and a medial lace support attached to said sole and respectively positioned adjacent to an inner surface of said lateral side and said medial side of said upper positioned in said open-ended spaces of said lateral side and said medial side of said upper, said lateral lace support having a first length and said medial lace support having a second length, wherein said second length is greater than said first length, said lateral and medial lace supports each including two support connecting tabs that are spaced apart, and said two support connecting tabs each have at least one second lace opening; and

said first connecting tabs of said upper and said second connecting tabs of said lateral and medial lace supports are alternatingly arranged along the lateral and medial sides of said upper; and

a lace threaded through said first lace openings of said first connecting tabs and said second lace openings of said second connecting tabs to secure said lace to said upper, wherein after said lace is secured to said upper and said lateral and medial lace supports, a first longitudinal axis extending between said lateral lace support and said medial lace support and through all points where said lace crosses over itself, is offset from a second longi-

tudinal axis extending between a medial side and a lateral side of said sole and along a center of gravity of a user's foot.

6. The article of footwear of claim **5**, wherein at least one of said first connecting tabs includes a plurality of said first lace openings.

7. The article of footwear of claim **6**, wherein the top edge and the bottom edge of said lateral and medial lace supports are not parallel to each other.

8. The article of footwear of claim **6**, wherein said lateral lace support and said medial lace support are each formed by three material layers.

* * * * *