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(54) **ATHLETIC SHOE HAVING AN IMPROVED CLEAT CONFIGURATION**

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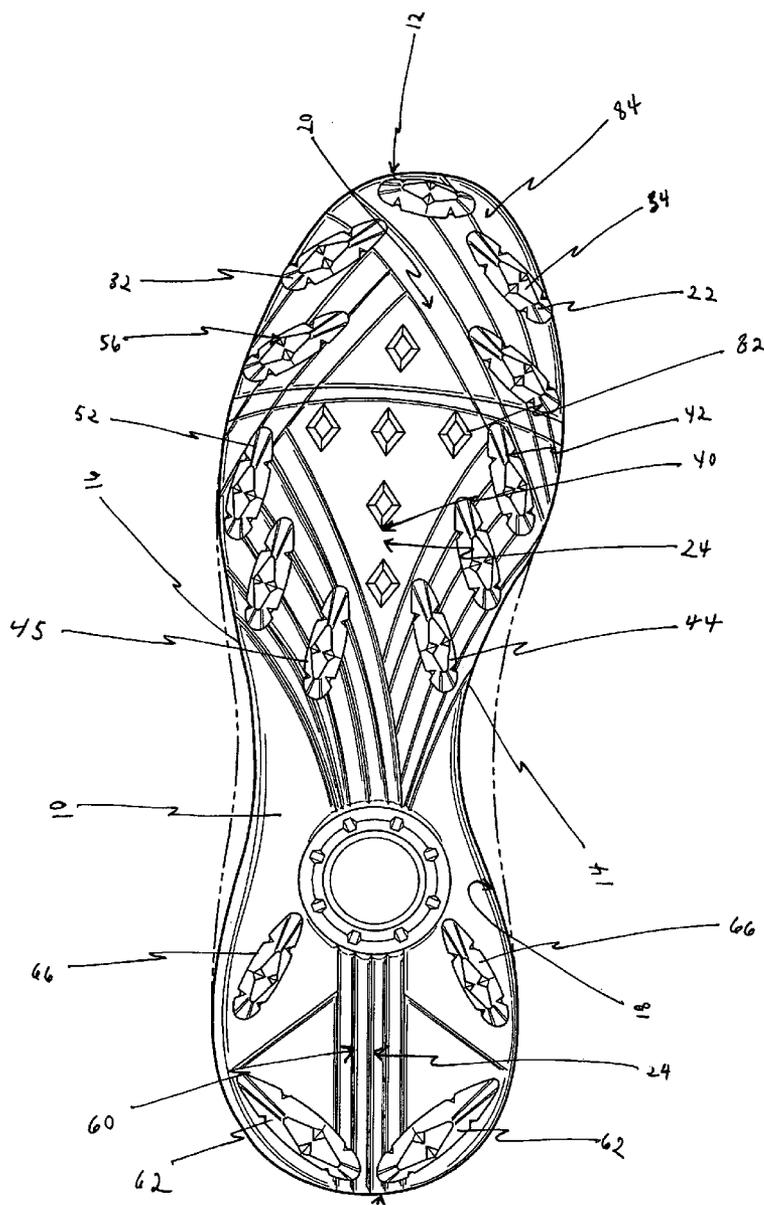
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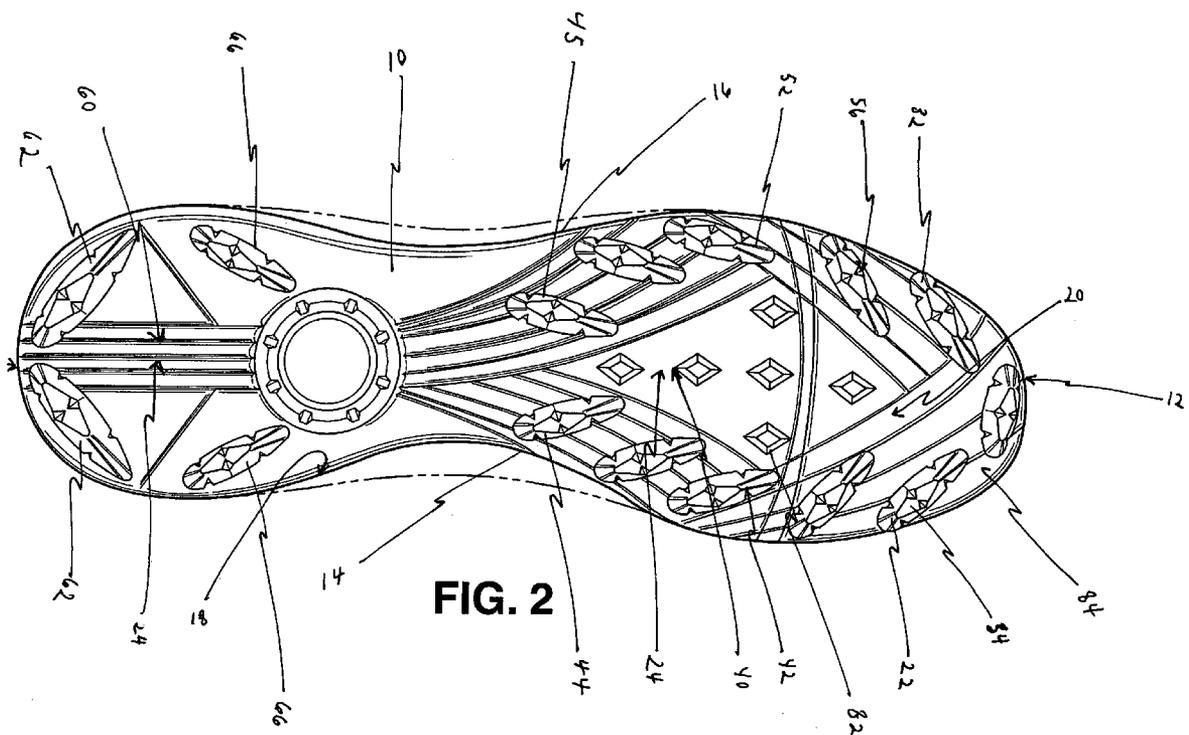
(57) **ABSTRACT**

An athletic shoe having an improved cleat configuration is provided. Various cleats are positioned for improved heel to toe transition and cleat pressure distribution as well as improved take-off and braking and side to side control for a wide variety of sports.

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ATHLETIC SHOE HAVING AN IMPROVED CLEAT CONFIGURATION

FIELD

[0001] The present invention relates to an improved cleat configuration for an athletic shoe. While the present invention is not limited to use with a baseball shoe, certain embodiments of the present invention provide an improved cleat configuration for a baseball shoe.

BACKGROUND

[0002] Sports such as baseball require players to constantly start and stop as well as shift from side to side and move back and forth on unstable surfaces. Athletic shoes for use in baseball and other sports have conventionally been provided with a plurality of cleats to add stability while the wearer is maneuvering during play. Numerous types of cleats exist that add stability during play. Also, numerous patterns have been developed for positioning cleats on athletic shoes. However, a need exists for an athletic shoe with an improved cleat configuration. Such an athletic shoe will better allow the wearer to maintain traction during forward motion and braking while also allowing the wearer to quickly change direction of movement. Thus, an improved cleat configuration and an athletic shoe with an improved cleat configuration that provides the wearer with added traction during pushoff and braking is desirable. In addition, an athletic shoe with an improved cleat configuration that will provide faster directional response as well as better support and cornering and side-to-side control is also desirable. Finally, an athletic shoe with optimal heel to toe transition and cleat pressure distribution is also desirable.

SUMMARY OF THE INVENTION

[0003] Objects and advantages of the invention will be set forth in part in the following description, or may be obvious from the description, or may be learned through practice of the invention.

[0004] The present invention relates to an athletic shoe with an improved cleat configuration. In one exemplary embodiment of the present invention, an athletic shoe with an outsole is provided. The outsole has a perimeter, a medial side, a lateral side, a forefoot region, and a midfoot region. A plurality of forefoot cleats are positioned along the shared area of the perimeter of the outsole and the forefoot region. The forefoot cleats each have a base with a front end and a rear end. For each forefoot cleat located on the medial side of the outsole, a corresponding forefoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding forefoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends. In addition, a plurality of midfoot cleats are positioned along the shared area of the perimeter of the outsole and the midfoot region. The midfoot cleats each have a base with a front end and a rear end. For each midfoot cleat located on the medial side of the outsole, a corresponding midfoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding midfoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends.

[0005] In certain embodiments, a plurality of mud separator cleats configured from material projecting from the

outsole are positioned adjacent to the forefoot cleats and midfoot cleats along the forefoot region and the midfoot region. Also, in some embodiments, the forefoot cleats and midfoot cleats may be equal in size. In some other embodiments, the outsole is formed from thermoplastic polyurethane. In still other embodiments, the forefoot cleats and midfoot cleats may have substantially flat ground engaging surfaces.

[0006] In another exemplary embodiment of the present invention, a cleat configuration for an outsole is provided. The outsole has a perimeter, a medial side, a lateral side, a forefoot region, a midfoot region, and a heel region. A plurality of forefoot cleats are positioned along the shared area of the perimeter of the outsole and the forefoot region. The forefoot cleats each have a base with a front end and a rear end. For each forefoot cleat located on the medial side of the outsole, a corresponding forefoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding forefoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends. In addition, a plurality of midfoot cleats are positioned along the shared area of the perimeter of the outsole and the midfoot region. The midfoot cleats each have a base with a front end and a rear end. For each midfoot cleat located on the medial side of the outsole, a corresponding midfoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding midfoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends. A plurality of mud separator cleats are positioned adjacent to the forefoot cleats and midfoot cleats along the forefoot region and the midfoot region. The mud separator cleats are also configured from material projecting from the outsole. In addition, a plurality of heel cleats are positioned along the heel region. The heel cleats are also configured from material projecting from the outsole.

[0007] In still another exemplary embodiment, an athletic shoe with an outsole is provided. The outsole has a perimeter, a medial side, a lateral side, a front end, a rear end, a forefoot region, a midfoot region, and a heel region. A toe cleat is positioned at the front end of the outsole and is configured from material projecting from the outsole. A plurality of forefoot cleats are positioned along the shared area of the perimeter of the outsole and the forefoot region. The forefoot cleats are equal in size and each have a base with a front end and a rear end. For each forefoot cleat located on the medial side of the outsole, a corresponding forefoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding forefoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends. Each corresponding forefoot cleat is also approximately the same distance from the front end of the outsole. In addition, a plurality of midfoot cleats are positioned along the shared area of the perimeter of the outsole and the midfoot region. The midfoot cleats are equal in size and each have a base with a front end and a rear end. For each midfoot cleat located on the medial side of the outsole, a corresponding midfoot cleat is adjacently located on the lateral side of the outsole. The front ends of each corresponding midfoot cleat are angled towards one another so the distance between the front ends is less than the distance between the rear ends. The adjacently located midfoot cleats are angled towards one another less than the adjacently located forefoot cleats.

A plurality of mud separator cleats are positioned adjacent to the forefoot cleats and midfoot cleats along the forefoot region and the midfoot region of the outsole. The mud separator cleats are also configured from material projecting from the outsole. In addition, a plurality of heel cleats are positioned along the heel region. The heel cleats are also configured from material projecting from the outsole.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] A full and enabling disclosure of this invention, including the best mode known to one of ordinary skill in the art, is set forth in this specification. The following Figures illustrate exemplary embodiments of the present invention:

[0009] **FIG. 1** is a bottom view of an exemplary embodiment of a cleat configuration for an athletic shoe.

[0010] **FIG. 2** is a perspective view showing an exemplary embodiment of a cleat configuration for an athletic shoe.

DETAILED DESCRIPTION

[0011] Reference now will be made to the embodiments of the invention, one or more examples of which are set forth below. Each example is provided by way of explanation of the invention, not as a limitation of the invention. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in this invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used on another embodiment to yield a still further embodiment. Thus, it is intended that the present invention cover such modifications and variations as come within the scope of the appended claims and their equivalents. Other objects, features, and aspects of the present invention are disclosed in or are apparent from the following detailed description.

[0012] The present invention is directed to an athletic shoe with a uniquely effective cleat configuration. The present invention provides improved traction and support for athletic activities. While the present invention is particularly well suited for a baseball shoe, it could be utilized for athletic shoes in football, rugby, golf, and many other sports.

[0013] The present invention is adapted to advantageously provide traction for forward and lateral movement by focusing on areas of the foot where such movement originates and is supported. The bone structure of the foot is important in determining the pressure points of the shoe where the wearer's weight is applied. Very generally, weight is projected between the forefoot, midfoot and heel regions of the foot. The forefoot includes the toe region of the foot. As used herein, medial refers to the inside of the wearer's foot and lateral refers to the outside of the wearer's foot. The present invention achieves greatly improved traction and support by focusing cleat placement to the regions of the foot where forward and lateral movement originate and are supported.

[0014] Generally, a cleat is a projection from the bottom of a shoe (or outsole) that provides added traction. The cleats of the present invention can be made of thermoplastic polyurethane (TPU), metal, rubber or any other material as will be understood by one of ordinary skill in the art using the teachings disclosed herein. The cleats may be molded from the same material as the sole of the athletic shoe or may be secured to the sole by glue or some other method known

to one of ordinary skill in the art. Cleats vary greatly in height and width depending on their location and their intended purpose. Cleats may also have one or more colors that are the same as or differ from one another. Cleat color may also differ from the color of the outsole and/or soleplate. In addition, a textured surface or other features may be added to provide a non-slip surface on the ground-engaging portion of the cleat.

[0015] With reference to **FIG. 1** and **FIG. 2**, an exemplary embodiment of a cleat configuration for an athletic shoe is provided. The athletic shoe **100** has an outsole **10** with a unique cleat configuration. The outsole **10** is made up of a forefoot region **20**, a midfoot region **40**, and a heel region **60**. The outsole **10** of the present invention can be made of thermoplastic polyurethane (TPU), rubber, polyurethane (PU) or any other material as will be understood by one of ordinary skill in the art using the teachings disclosed herein. The outsole may either be the same color or a different color from the cleats and/or soleplate. The outsole **10** has a front end **12**, a rear end **13**, a medial side **14**, a lateral side **16**, and a centerline **24**. In addition, the outsole is defined by a perimeter **18**.

[0016] In one exemplary embodiment, one or more forefoot cleats **22** are positioned in the forefoot region **20** of the outsole **10**. The forefoot cleats **22** are positioned to optimize take off and braking power by utilizing the weight on the forefoot region **20** during these actions. As illustrated in **FIG. 1** and **FIG. 2**, the forefoot cleats **22** are positioned along the shared area of the perimeter **18** of the outsole **10** and the forefoot region **20**. However, in some embodiments, the forefoot cleats **22** may also be located closer to the centerline **24**. The forefoot cleats **22** are approximately equal in size and have a base **38** with a length that is greater than the width and a front end **28** and a rear end **30** (**FIG. 1**). In other exemplary embodiments, the forefoot cleats **22** may have varying size and shape.

[0017] As illustrated in **FIG. 1** and **FIG. 2**, for each forefoot cleat **22** positioned on the medial side **14** of the outsole **10**, there is a corresponding forefoot cleat **32** that is adjacently located on the lateral side **16** of the outsole **10**. The front ends **28** of adjacently located forefoot cleats **22** and **32** are angled towards one another in a manner such that the distance between the front ends **28** is less than the distance between the rear ends **30**. In addition, the adjacently located forefoot cleats **22**, **32** are each approximately the same distance from the front end **12** of the outsole **10**. In other exemplary embodiments, the adjacently located forefoot cleats **22**, **32** may be at greater or lesser angles to one another than as shown in **FIG. 1** and **FIG. 2**.

[0018] A toe cleat **21** is positioned in the forefoot region **20** of the outsole **10**. As illustrated in **FIG. 1** and **FIG. 2**, the toe cleat **21** is positioned along the front end **12** of the outsole **10** in the forefoot region **20**.

[0019] One or more midfoot cleats **42** are positioned in the midfoot region **40** of the outsole **10**. The midfoot cleats **42** are located to provide for improved side-to-side control during lateral movements. The midfoot cleats **42** are positioned along the shared area of the perimeter **18** of the outsole **10** and the midfoot region **40**. The midfoot cleats **42** are approximately equal in size and have a base **58** with a length that is greater than the width and a front end **48** and a rear end **50**. In other exemplary embodiments, the midfoot cleats **42** may have varying size and shape.

[0020] As shown in FIG. 1 and FIG. 2, for each midfoot cleat 42 positioned on the medial side 14 of the outsole 10, there is a corresponding midfoot cleat 52 that is adjacently located on the lateral side 16 of the outsole 10. The front ends 48 of the adjacently located midfoot cleats 42, 52 are angled towards one another in a manner such that the distance between the front ends 48 is less than the distance between the rear ends 50. However, the adjacently located midfoot cleat 42, 52 are angled towards one another less than the adjacently located forefoot cleats 22, 32. In other exemplary embodiments, the adjacently located forefoot cleats 42, 52 may be at greater or lesser angles.

[0021] Also as illustrated in FIG. 1 and FIG. 2, additional adjacently located midfoot cleats 44, 45 are located closer to the centerline 24 in the midfoot region 40 of the outsole 10. Similar to the adjacently located midfoot cleats 42, 52, they are angled towards one another less than the adjacently located forefoot cleats 22, 32.

[0022] Thus, the adjacently located forefoot cleats 22, 32 function more effectively during acceleration and braking due to their greater angle towards one another. Similarly, the adjacently located midfoot cleats 42, 52, are angled towards one another less and are therefore more effective for lateral control.

[0023] Combined, the forefoot cleats 22 and midfoot cleats 42 make up perimeter cleats 80. The perimeter cleats 80 allow for optimal heel to toe transition and cleat pressure distribution. The perimeter cleats 80 benefit from the combined advantages of advanced take-off and breaking of the forefoot cleats 22 and improved lateral control of the midfoot cleats 42.

[0024] During the play of certain sports activities, it is not uncommon to encounter muddy, slippery surfaces. Mud separator cleats 82 help to increase traction as well as improve maneuverability during play. In yet another exemplary embodiment as illustrated in FIG. 1 and FIG. 2, one or more mud separator cleats 82 are positioned in the forefoot region 20 as well as the midfoot region 40. The mud separator cleats 82 are spaced so as to prevent or minimize mud from sticking on the outsole 10.

[0025] A pair of heel cleats 62 is positioned in the heel region 62 of the outsole 10. The heel cleats 62 are located to allow for superior take off and braking power by utilizing the weight on the heel region 60 during these actions. The heel cleats 62 are positioned along the shared area of the perimeter 18 of the outsole 10 and the heel region 60. The heel cleats 62 are equal in size and have a base 78 with a length that is greater than the width and a front end 68 and a rear end 70. In other exemplary embodiments, the heel cleats 62 may have varying size and shape.

[0026] As depicted in FIG. 1 and FIG. 2, one heel cleat 63 is positioned on the medial side 14 of the outsole 10, and there is a corresponding heel cleat 65 that is adjacently located on the lateral side 16 of the outsole 10. The front ends 68 are angled away from one another in a manner such that the distance between the front ends 68 is greater than the distance between the rear ends 70.

[0027] Another pair of heel cleats 66 is positioned at the portion of the heel region 60 closest to the front end 12 of the outsole 10 along the shared area of the perimeter 18 of the outsole 10 and the heel region 60. The second pair of

heel cleats 66 is similar to the first pair 62, except it is arranged so that the distance between the front ends is less than the distance between the rear ends.

[0028] Each forefoot cleat 22, midfoot cleat 42, heel cleat 60, and mud separator cleat 82 has a ground-engaging surface 54 as illustrated in FIG. 1 and FIG. 2. The ground-engaging surface 54 (FIG. 1) is substantially flat and parallelogram shaped. However, the ground-engaging surface could also be textured and have varying shapes and sizes as would be known in the art. Also, each individual cleat may have a different type of ground-engaging surface. In some embodiments, notches 56 may be removed at the intersection of the two sides of the parallelogram shaped ground-engaging surface 34. At these notches 56, the ground-engaging surface 54 is not flat. In addition, in other exemplary embodiments, other suitable shapes and features may be added to the ground-engaging surface 54.

[0029] A sole plate 84 is illustrated in FIG. 1 and FIG. 2. The sole plate 84 is a layer of material above the outsole 10 and may be formed from thermoplastic polyurethane (TPU), rubber, polyurethane (PU) or any other material as will be understood by one of ordinary skill in the art using the teachings disclosed herein. The sole plate 84 provides additional support to the wearer of the shoe by enhancing the stability of the outsole. As illustrated in FIG. 1 and FIG. 2, the sole plate 84 is positioned along the heel region 60, as well as the midfoot region 40 and the forefoot region 20. The sole plate 84 is at the base of the heel cleats 62 and perimeter cleats 80. The sole plate may be a different color from the cleats and/or outsole. In addition, in other exemplary embodiments, the sole plate 84 may have other suitable shapes and features.

[0030] As illustrated in FIG. 1 and FIG. 2, the sole plate 84 also surrounds a clear bubble 86. The bubble 86 is formed from PU or any other suitable material and is the substantially level with the outsole 10. The bubble 86 may contain information about the footwear or other indicia.

[0031] While exemplary embodiments of the present invention have been described utilizing various cleat configurations, it should be understood that the present invention is not limited to only these configurations as will be understood by one of ordinary skill in the art using the teaching disclosed herein. It should be appreciated by those skilled in the art that modifications and variations can be made to the exemplary embodiment of athletic shoe 10 as described herein, without departing from the scope and spirit of the claims. It is intended that the invention include such modifications and variations as come within the scope of the appended claims and their equivalents.

What is claimed is:

1. An athletic shoe comprising:

an outsole, said outsole having a perimeter, a medial side, and a lateral side, said outsole having a forefoot region and a midfoot region;

a plurality of forefoot cleats, said forefoot cleats configured from material projecting from said outsole, each said forefoot cleat having a base with a front end and a rear end, said forefoot cleats positioned along the shared area of said perimeter of said outsole and said forefoot region, each said forefoot cleat located on said medial side of said outsole having a corresponding

forefoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located forefoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends; and

a plurality of midfoot cleats, said midfoot cleats configured from material projecting from said outsole, each said midfoot cleat having a base with a front end and a rear end, said midfoot cleats positioned along the shared area of said perimeter of said outsole and said midfoot region, each said midfoot cleat located on said medial side of said outsole having a corresponding midfoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located midfoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends.

2. An athletic shoe as set forth in claim 1, further comprising a plurality of mud separator cleats, said mud separator cleats configured from material projecting from said outsole, said mud separator cleats positioned adjacent to said forefoot cleats and midfoot cleats such that they are located along said forefoot region and said midfoot region.

3. An athletic shoe as set forth in claim 1, wherein said forefoot cleats and said midfoot cleats are equal in size.

4. An athletic shoe as set forth in claim 1, wherein said outsole is formed from thermoplastic polyurethane.

5. An athletic shoe as set forth in claim 1, wherein said forefoot cleats and midfoot cleats have substantially flat ground engaging surfaces.

6. A cleat configuration for an outsole, said outsole having a perimeter, a medial side, and a lateral side, said outsole including a forefoot region, a midfoot region, and a heel region, said outsole comprising:

a plurality of forefoot cleats, said forefoot cleats configured from material projecting from said outsole, each said forefoot cleat having a base with a front end and a rear end, said forefoot cleats positioned along the shared area of said perimeter of said outsole and said forefoot region, each said forefoot cleat located on said medial side of said outsole having a corresponding forefoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located forefoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends; and

a plurality of midfoot cleats, said midfoot cleats configured from material projecting from said outsole, each said midfoot cleat having a base with a front end and a rear end, said midfoot cleats positioned along the shared area of said perimeter of said outsole and said midfoot region, each said midfoot cleat located on said medial side of said outsole having a corresponding midfoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located midfoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends;

a plurality of mud separator cleats, said mud separator cleats configured from material projecting from said

outsole, said mud separator cleats positioned adjacent to said forefoot cleats and midfoot cleats such that they are located along said forefoot region and said midfoot region; and

a plurality of heel cleats, said heel cleats configured from material projecting from said outsole, said heel cleats positioned along the shared area of said perimeter of said outsole and said heel region.

7. A cleat configuration for an outsole as set forth in claim 6, further comprising a sole plate, said sole plate extending from said heel region through said midfoot region to said forefoot region, said sole plate formed from the same material as said outsole, said sole plate positioned so as to be at the base of said heel cleats, said midfoot cleats, and said forefoot cleats.

8. A cleat configuration for an outsole as set forth in claim 6, wherein said forefoot cleats, said midfoot cleats, said mud separator cleats, and said heel cleats are molded from thermoplastic polyurethane.

9. A cleat configuration for an outsole as set forth in claim 6, wherein said outsole is formed from thermoplastic polyurethane.

10. A cleat configuration for an outsole as set forth in claim 6, wherein said forefoot cleats, said midfoot cleats, said mud separator cleats, and said heel cleats have substantially flat ground engaging surfaces.

11. An athletic shoe comprising:

an outsole, said outsole having a perimeter, a medial side, a lateral side, a front end, a rear end, a forefoot region, a midfoot region and a heel region;

a toe cleat, said toe cleat configured from material projecting from said outsole, said toe cleat positioned at said front end of said outsole;

a plurality of forefoot cleats, said forefoot cleats configured from material projecting from said outsole, each said forefoot cleat being equal in size and having a base with a front end and a rear end, said forefoot cleats positioned along the shared area of said perimeter of said outsole and said forefoot region, each said forefoot cleat located on said medial side of said outsole having a corresponding forefoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located forefoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends, said adjacently located forefoot cleats each being positioned approximately the same distance from said front end of said outsole;

a plurality of midfoot cleats, said midfoot cleats configured from material projecting from said outsole, each said midfoot cleat being equal in size and having a base with a front end and a rear end, said midfoot cleats positioned along the shared area of said perimeter of said outsole and said midfoot region, each said midfoot cleat located on said medial side of said outsole having a corresponding midfoot cleat being adjacently located on said lateral side of said outsole with said front ends of each adjacently located midfoot cleat being angled towards one another such that the distance between said front ends is less than the distance between said rear ends, said adjacently located midfoot cleats being angled towards one another less than said adjacently located forefoot cleats;

- a plurality of mud separator cleats, said mud separator cleats configured from material projecting from said outsole, said mud separator cleats positioned adjacent to said forefoot cleats and said midfoot cleats such that they are located along said forefoot region and said midfoot region; and
 - a pair of heel cleats, said heel cleats configured from material projecting from said outsole, said heel cleats positioned along the shared area of said perimeter of said outsole and said heel region.
- 12.** An athletic shoe as set forth in claim 11, further comprising a second pair of heel cleats, said heel cleats configured from material projecting from said outsole, said heel cleats positioned along the shared area of said perimeter of said outsole and said heel region.
- 13.** An athletic shoe as set forth in claim 11, wherein said toe cleat, said forefoot cleats, said midfoot cleats, and said heel cleats each have generally parallelogram shaped ground-engaging surfaces.
- 14.** An athletic shoe as set forth in claim 11, wherein said mud separator cleats have generally parallelogram shaped ground-engaging surfaces.

- 15.** An athletic shoe as set forth in claim 11, further comprising a sole plate, said sole plate extending from said heel region through said midfoot region to said forefoot region, said sole plate formed from the same material as said outsole, said sole plate positioned so as to be at the base of said heel cleats, said midfoot cleats, and said forefoot cleats.
- 16.** An athletic shoe as set forth in claim 15, wherein the ground-engaging surfaces of said forefoot cleats, said midfoot cleats, said heel cleats, and said mud separator cleats are a color different from the color of said sole plate.
- 17.** An athletic shoe as set forth in claim 11, wherein said outsole is formed from thermoplastic polyurethane.
- 18.** An athletic shoe as set forth in claim 11, wherein said toe cleat, said forefoot cleats, said midfoot cleats, said heel cleats, and said mud separator cleats are formed from thermoplastic polyurethane.
- 19.** An athletic shoe as set forth in claim 11, wherein said toe cleat, said forefoot cleats, said midfoot cleats, said heel cleats, and said mud separator cleats are formed from metal.
- 20.** An athletic shoe as set forth in claim 15, wherein said soleplate is formed from rubber.

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