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(54) **FOOTWEAR KIT WITH ADJUSTABLE FOREPARTS**

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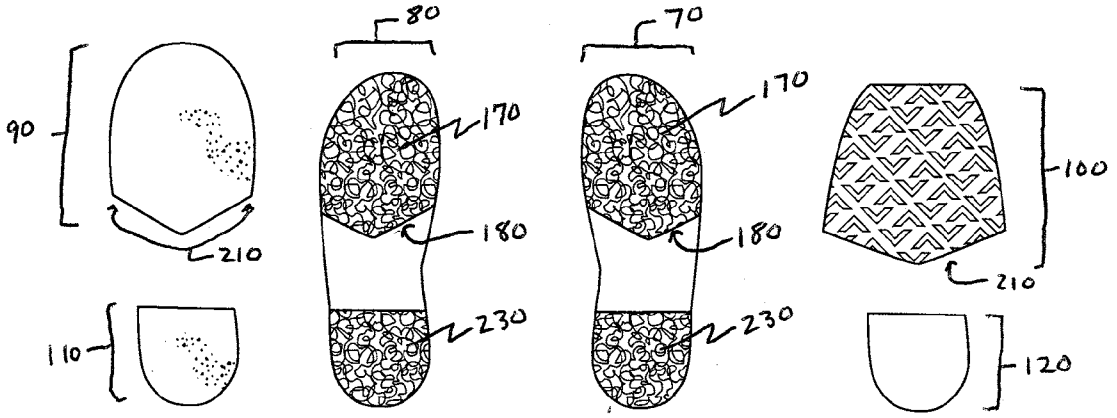
USPC **36/103**; 36/83

(57) **ABSTRACT**

A footwear kit suitable for producing a pair of customized bowling shoes with appropriate sliding sole and a traction sole for right and left handed bowlers and optimizable for a variety of lane conditions is provided. A distal margin on the shoe matches a margin on a removable forepart to provide rapid alignment and orientation of the ground contact surface area of the forepart to the shoe. Foreparts provided are adjustable for use on either a left or right shoe.



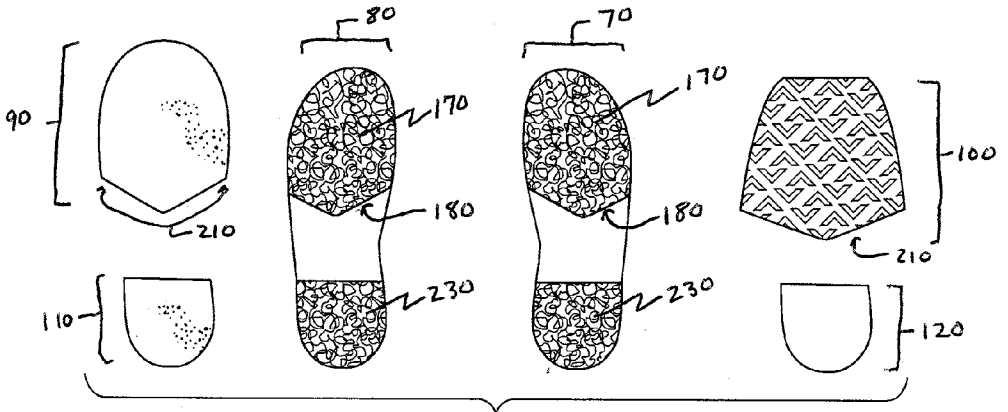


FIG. 1

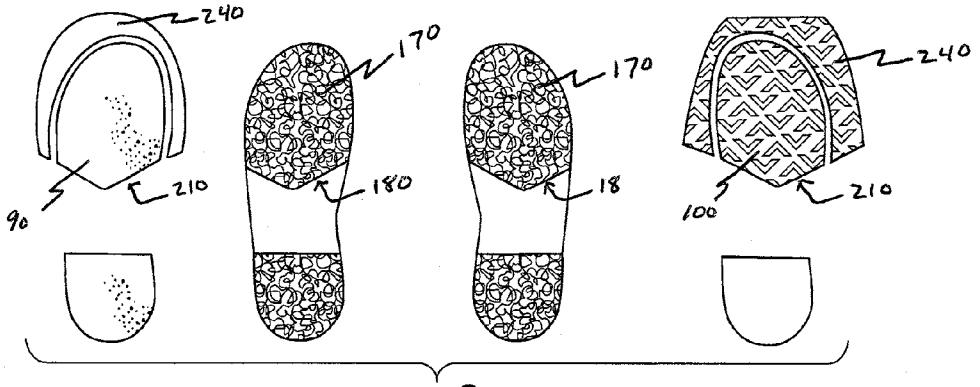


FIG. 2

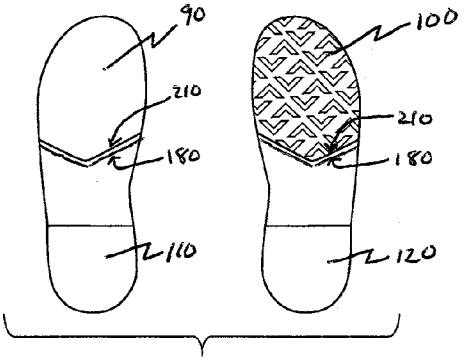


FIG. 3

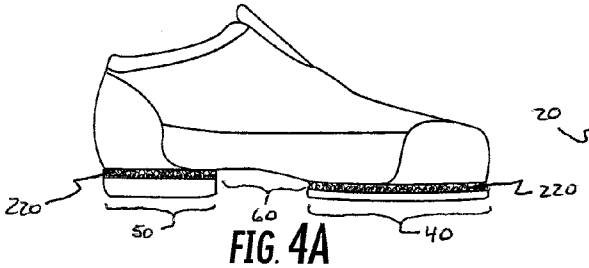


FIG. 4A

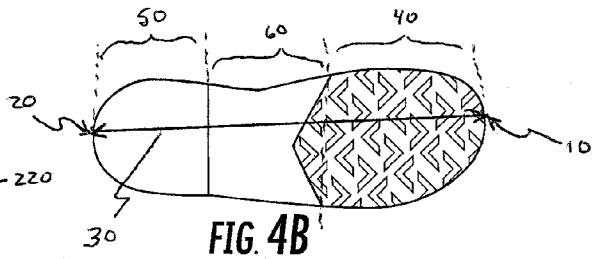


FIG. 4B

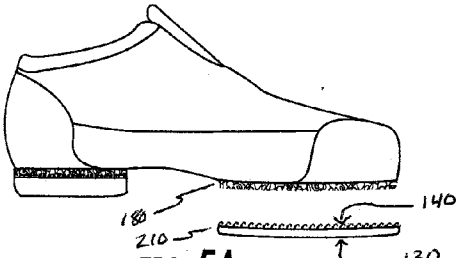


FIG. 5A

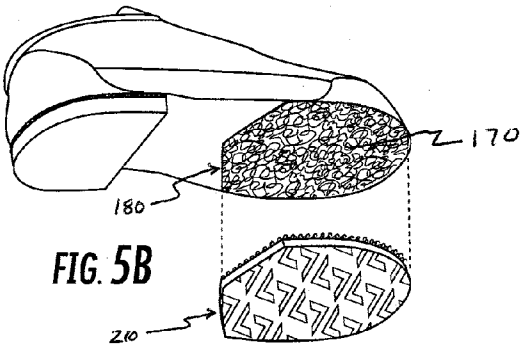


FIG. 5B

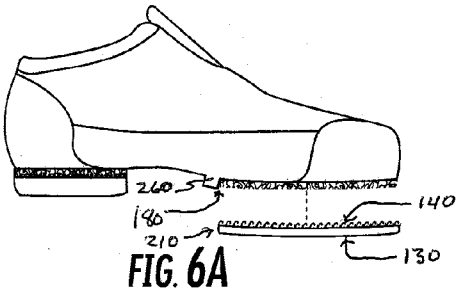


FIG. 6A

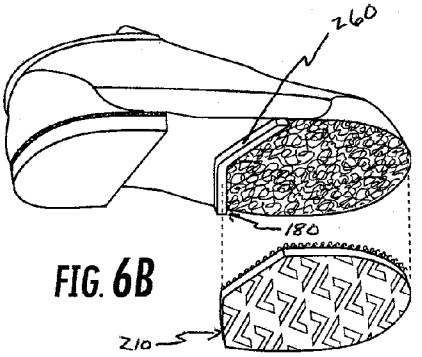


FIG. 6B

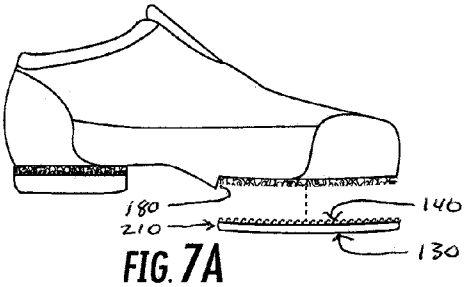


FIG. 7A

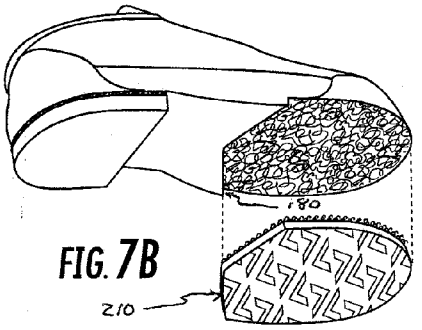


FIG. 7B

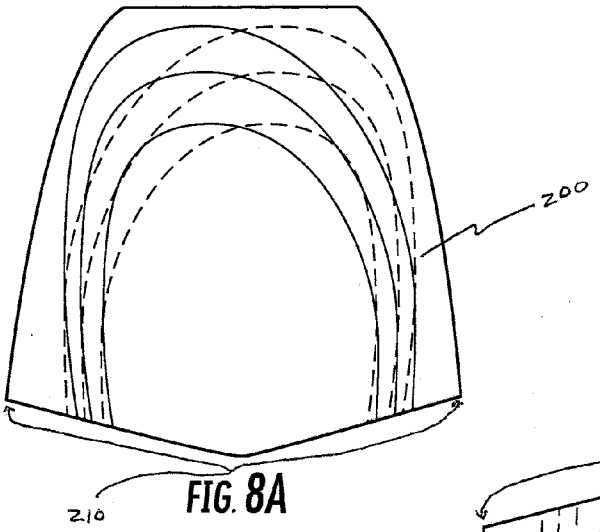


FIG. 8A

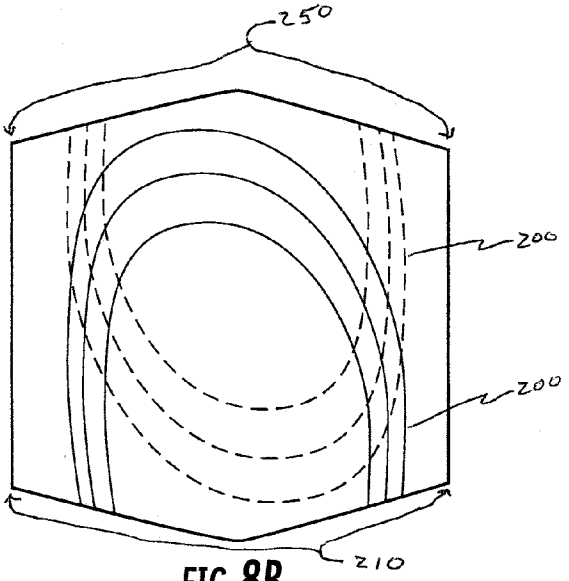


FIG. 8B

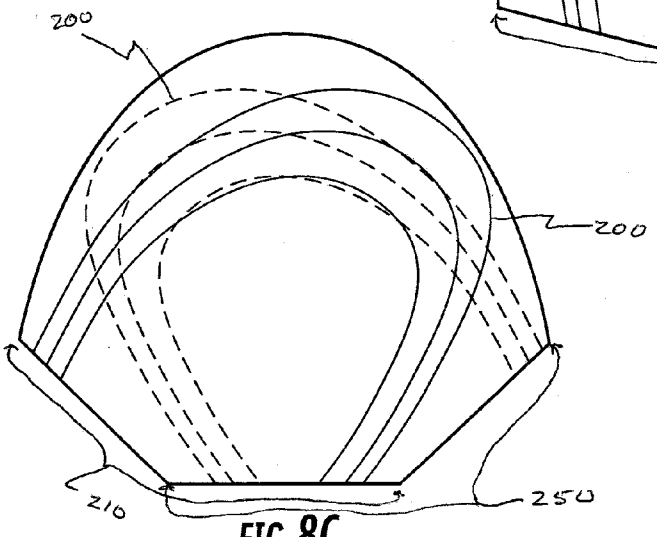


FIG. 8C

FOOTWEAR KIT WITH ADJUSTABLE FOREPARTS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit under 35 U.S.C. §119(e) of U.S. Provisional Patent Application 61/819,249, filed on May 3, 2013, the content of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] Standardization of bowling shoes for a mass market results in bowling shoes with no difference in traction characteristics between different pairs, or in many cases even between left and right shoes, although the two feet are performing different functions. Improvements in bowling performance may be realized by adjusting the traction characteristics of the shoes based on the different functions of the two feet in bowling.

[0003] The typical bowler will approach the foul line with the leading foot stopping just short of the foul line, and in many cases it is desirable to have a shoe for the leading foot having lower traction than the shoe for the trailing foot. For marketing, this requires providing pairs of shoes having different traction characteristics on the left shoe and the right shoe, and also requires different pairs for left handed bowlers and right hand bowlers. The shoes are frequently referred to as having either a "traction sole" or a "sliding sole", and a bowler will typically use a traction sole on the strong or trailing foot and a sliding sole on the weak or leading foot. The condition of the lane and the speed, height, weight, and shoe size of the bowler are just a few of the many factors which determine how much traction the bowler will need—a taller, heavier bowler with small foot and fast approach on a slick lane will require more traction than a shorter, lighter bowler with large feet and a slow approach on a rougher lane. This may require each bowler to provide a number of different left and right shoes having ground contact surfaces with different traction characteristics to more closely tailor the traction characteristics of the shoes to the lane condition. This may also require a dealer in bowling shoes to stock an inventory of left and right shoes in every size, each having soles with differing ground contact surfaces having different traction characteristics, and each suitable to only a small percentage of the bowling population. In the extreme, it can be imagined that the perfect shoe for a single bowler on a particular lane may be unlike the perfect shoe for any other single bowler and less suitable for the same bowler on any other lane. Compromises are usually sought between tailoring the shoe for individual performance and providing a possibly less suitable shoe which can be used by, and sold to, a larger segment of the bowling population.

[0004] It can also be appreciated that different portions of the same foot are in contact with the ground during different parts of the approach, and that a further improvement in performance may be realized by varying the traction characteristics in discrete portions of the same shoe, or by incorporating sections of ground contact surface in which a traction characteristic varies across the section. However, due to the individual nature of each person's approach to the line, an even wider selection of shoes must be maintained, each suitable to an even smaller number of people, to accommodate individual tread pattern preferences. Furthermore, each individual would need to invest in a sizable number of different pairs of shoes to find the individual tread pattern most suited to his or her bowling style, and in additional pairs of shoes to match the different lane surface conditions.

[0005] Several approaches have been taken to match the traction characteristics of the shoe to different bowlers and different lanes without increasing the inventory of shoes required. Many of these involve ground contact surfaces that can be altered without requiring the construction of a new shoe. For example, Kim (U.S. Pat. No. 7,246,453) and McCord (U.S. Pat. No. 3,027,661) appear to provide shoes with interchangeable slide pads fitting into recesses in the forepart of the shoe. However, these recesses do not extend to the periphery of the shoe, and some portion of the ground contact surface of the shoe remains unchanged when replacing the slide pad, resulting in an uneven ground contact surface. Weidman et al (US publication 2013/0000153A1) and Tsuji (U.S. Pat. No. 6,598,324B1) appears to show a bowling shoes with different shaped elements and a multitude of inserts for both the sliding and traction sole. Although these designs may reduce the number of different shoes required in stock, that reduction is offset by the increasing number and complexity both of size and shape of the different ground contact surfaces required. An individual would need to stock a large number of small pieces, each easily lost, misplaced, or confused with similar pieces. Welco (U.S. Pat. No. 3,552,040) appears to show a single slide surface which extends to the periphery of the shoe, but makes no provision for providing different ground contact surfaces for different conditions. Other methods for providing interchangeable foreparts have been disclosed, but the challenge of providing shoes suitable for both right and left handed bowlers with traction characteristics that can be adjusted by each bowler for different lane conditions typically leads to the necessity for stocking a wide variety of foreparts having differing ground contact surfaces in both left and right handed styles and in sizes to fit every foot.

[0006] The sale of a pair of customized bowling shoes is typically a complicated process involving the selection of the shoes, followed by the selection of a slide pad in a size and handedness to match the sliding sole and a traction pad in a size and handedness to match the traction sole, and possibly the selection of additional slide and traction pads in the appropriate size and handedness to alter the shoes to fit differing lane conditions. The ability of the manufacturer to provide and the retailer to stock a variety of foreparts having differing traction characteristics is limited by the necessity to stock each forepart in left and right handed configurations and in a multitude of shoe sizes. To reduce the complexity of the transaction and provide a single pair of shoes to be used by either a right or left handed bowler, a footwear kit may be provided including both a left and right slide pad and both a left and right traction pad, but this results in the waste of at least two inserts. As so few bowlers are ambidextrous, it is extremely rare that any bowler would ever use both slide pads or both traction pads.

[0007] It is desirable, therefore, to provide a single forepart which is modified to fit a left or right shoe in any size, and is removably attached and easily replaced. To provide further options for customizing the ground contact surface of the slide pad to include directional or positional differences in traction characteristics, it is desirable that the forepart be easily indexed to orient the traction characteristics of the forepart to the shoe each time it is attached. This would permit

a manufacturer to supply one sliding forepart and one traction forepart with each pair of shoes, and the shoes would be suitable for either a left or right handed bowler. This would also permit a retailer to stock each forepart in only a single configuration, to be adjusted to size and handedness after sale, permitting the stocking of a larger variety of ground contact surfaces rather than a larger variety of sizes and handedness.

[0008] Accordingly, there is a need for a footwear kit that can be marketed to both left and right handed bowlers with a forepart adapted to fit either a left or right shoe in any size and indexed to orient the traction characteristics of the forepart to the shoe. It is also desirable to provide a bowling shoe kit suitable for both a left handed and right handed bowler with foreparts that are individually shaped by the consumer or retailer to provide a pair of shoes including a left and right shoe having different traction characteristics, the resulting pair of shoes being suitable for either a left handed or right handed bowler but not both.

SUMMARY OF THE INVENTION

[0009] It is therefore an object of the present invention to provide a bowling footwear kit including a removable forepart that can be fitted to either a left or right shoe of any marketed size, that will cover the entire ground contact surface area in front of the arch of the shoe, and that is indexed to orient the forepart to the shoe.

[0010] It is a further object of this invention to provide a bowling footwear kit with removable foreparts having different traction characteristics, wherein the foreparts provided are larger than the surface they are intended to cover.

[0011] It is a further object of this invention to provide a footwear kit with removable foreparts, each forepart having a plurality of traction characteristics in a preselected pattern and orientation across the forepart, such that cutting the forepart in different orientations to fit the surface of the shoe it is intended to cover will provide varying patterns of traction characteristics across the forepart.

[0012] It is another object of the present invention to provide a bowling shoe that can be used either as a traction shoe or a sliding shoe.

[0013] It is another object of the present invention to provide a pair of bowling shoes that are suitable for either a left or right handed bowler, one shoe of the pair having a sliding sole and the other having a traction sole.

[0014] It is another object of the present invention to provide for rapid customization of a pair of bowling shoes by the user for differing surfaces.

[0015] It is another object of the present invention to provide foreparts for customizing the ground contact surfaces of shoes that are adaptable for use on either a right or left shoe of any size.

[0016] These and other objects are achieved by providing a footwear kit including a forepart that is larger in length and width than the length and width of a forepart receiving area of the shoe, thus allowing the same forepart to be cut to fit either the left shoe or the right shoe and to completely cover the forepart receiving area of only the shoe which it is cut to fit. In some embodiments, the forepart has a margin which matches the distal margin of the forepart receiving area of the shoe. The distal margin of the forepart receiving area of the shoe extends laterally across the shoe at the rear of the forepart receiving area. In some embodiments the distal margin is a single feature extending laterally across the entire sole of the shoe. In other embodiments, the distal margin is established by a series of features disposed laterally across the sole of the shoe.

[0017] In some embodiments, the forepart has a ground contact surface displaying a plurality of traction characteristics. In some embodiments, these traction characteristics are directional in nature, such that a force applied parallel to the ground contact surface from one direction will result in one traction characteristic, while the same magnitude force applied parallel to the ground contact surface from a second direction will result in a different traction characteristic. In some embodiments, aligning the margin of the forepart to the distal margin of the forepart receiving area of the shoe establishes the directionality of the traction characteristic of the ground contact surface with respect to the shoe.

[0018] In some embodiments, the traction characteristic of the forepart varies with respect to its location on the ground contact surface of the forepart, with some areas of the forepart displaying higher traction than others in response to the same magnitude and direction of force applied parallel to the ground contact surface. In some embodiments, aligning the margin of the forepart to the distal margin of the forepart receiving area of the shoe establishes the geometry and distribution of the traction characteristics of the ground contact surface with respect to the shoe.

[0019] In some embodiments, the forepart further comprises a series of size guides. In some embodiments, the size guides are printed on a surface of the forepart. In other embodiments, the size guides are molded or cut into a surface of the forepart. In still other embodiments, the size guides are perforations in the forepart. In still other embodiments, the size guides are formed from a combination of these treatments.

[0020] In some embodiments, the forepart further comprises a ground contact surface and a fastener surface. The fastener surface of the forepart further comprises one part of a two part fastener system, the second part of the system being disposed on the forepart receiving area of the shoe. Sizing the forepart to fit a left shoe when the fastener surface of the forepart is attached to the forepart receiving area of the shoe will result in a forepart periphery that is different than the periphery of a forepart sized to fit the forepart receiving area of a right shoe of the same size, at least in their being roughly mirror images.

[0021] In some embodiments, the invention comprises a shoe having a forepart receiving area extending longitudinally from a toe end of the shoe distally to an arch portion of the shoe and extending laterally across an entire width of the sole, the forepart receiving area further comprising a distal margin. In these embodiments, the invention further comprises a forepart having at least one margin matching the distal margin of the forepart receiving area, and a length and width exceeding the length and width of the forepart receiving area, such that before fitting, the forepart when attached to the forepart receiving area of the shoe will completely cover the forepart receiving area and extend beyond the sole of the shoe. In some embodiments, the invention further comprises a fastener for removably attaching the forepart to the forepart receiving area. In some embodiments, the fastener is an interlocking hook and pile two part fastening system.

[0022] In some embodiments, the extent of the forepart receiving area is defined by the extent to which the sole of the shoe is covered by one part of the two part fastening system, the distal margin of the forepart receiving area being defined

by the distal edge of the fastener. In other embodiments, the sole of the shoe further comprises a protrusion defining the distal margin of the forepart receiving area. In some embodiments, the protrusion is a continuous ridge extending laterally from a medial edge of the sole to a lateral edge of the sole. In other embodiments, the distal margin is a series of protrusions disposed laterally across the width of the sole. In some embodiments, the forepart receiving area is recessed into the sole, and the distal margin is defined by the rear edge of the recess.

[0023] In some embodiments, the invention comprises a pair of shoes including a left and right shoe, each shoe having a sole with a forepart receiving area extending longitudinally from a toe end of the shoe rearward to an arch portion of a shoe and extending laterally across an entire width of the shoe, the forepart receiving area further comprising a distal margin and a fastener for securing the forepart to the shoe. In some of these embodiments, the invention further comprises a forepart longer than the longitudinal length of the forepart receiving area, and wider than the lateral width of the forepart receiving area of either shoe, such that when attached to either the left shoe or the right shoe, the forepart extends beyond the sole of the shoe. The forepart further comprises a margin shaped to fit the distal margin of both the left and right shoe. In some embodiments, the invention further comprises a second forepart having a different traction characteristic of the first forepart.

[0024] In some embodiments, the foreparts have a second margin shaped to fit the distal margin of the forepart receiving area, such that the forepart can be sized either using the first margin or the second margin aligned to the distal margin of the forepart receiving area. In some embodiments the margin of the forepart and the distal margin of the forepart receiving area include at least one angle such that an angle between edges on the margin of the forepart fits an angle between edges of the distal margin of the forepart receiving area to align the forepart to the forepart receiving area.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. **1** depicts a footwear kit in accordance with the current invention.

[0026] FIG. **2** depicts the footwear kit shown in FIG. **1** with heels attached and excess forepart material removed

[0027] FIG. **3** depicts the footwear kit shown in FIG. **1** with heels and foreparts attached.

[0028] FIGS. **4***a* and **4***b* depict a side view and bottom view respectively of a shoe of the footwear kit shown in FIG. **1** with heel and forepart attached.

[0029] FIGS. **5***a* and **5***b* depict a side view and bottom perspective view of a shoe of the footwear kit shown in FIG. **1** with heel attached and forepart detached.

[0030] FIGS. **6***a* and **6***b* depict a side view and bottom perspective view of a shoe of the footwear kit shown in FIG. **1** in an alternative configuration with heel attached and forepart detached.

[0031] FIGS. **7***a* and **7***b* depict a side view and bottom perspective view of a shoe of the footwear kit shown in FIG. **1** in an alternative configuration with heel attached and forepart detached.

[0032] FIGS. **8***a*, **8***b*, and **8***c* depict a forepart of the footwear kit shown in FIG. **1** in alternative configurations.

DETAILED DESCRIPTION OF THE INVENTION

[0033] For the purposes of this application, shoe soles will be described as having a toe edge (**10**) at the front of the shoe sole and a heel edge (**20**) at the back of the shoe sole, marking the furthest extents of the longest dimension (**30**) of the shoe sole as shown in FIG. **4**. For the purposes of this application, the word "medial" will be used when referring to the side of the shoe or shoe part normally located towards the center of the body from the longest dimension (**30**) (the left side of a right shoe and the right side of a left shoe) and the word "lateral" will, be used when referring to the side of the shoe or shoe part normally located towards the outside of the body from the longest dimension (**30**) (the left side of a left shoe and the right side of a right shoe). For most shoes, the lower surface of the shoe sole can be seen as having three portions: a forward ground contact section (**40**) beneath the toes and ball of the foot of the wearer and extending from the toe edge rearward including the periphery of the sole forward of the arch portion; a rear ground contact section (**50**) beneath the heel of the wearer extending from the heel edge of the shoe forward; and between them, an arch portion (**60**) which is elevated or recessed under normal conditions and has no ground contact surfaces. For the purposes of this application, the boundary between the forward ground contact surface and the arch portion of the shoe is defined by the rear-most portion of the forward ground contact surface that touches the ground when the shoe is at rest or in normal use, extended to the periphery of the sole. Each of the ground contact surfaces may display uniform traction characteristics that are consistent across the entire surface, or may have a number of traction characteristics for discrete areas composed of diverse surface materials, textures, or treatments.

[0034] The term "traction characteristic" encompasses any quality of the ground contact surface of the shoe that affects the amount of traction between the shoe and the surface on which it is placed. The ground contact surfaces are those surfaces of the shoe which come into contact with the ground during use. Traction refers to the friction between the ground contact surface and the surface upon which it is placed. Traction characteristics can be varied by changing the material of the ground contact surface. For example, a ground contact surface made of rubber typically has a higher coefficient of friction than a ground contact surface made of leather, leading to higher traction, and soft, spongy rubber typically has higher traction than hard, smooth rubber. Traction characteristics are also varied by surface treatments such as waxing, or oiling to reduce traction, or adding resins or adhesives to increase traction. Traction characteristics are further varied and can be varied in a directional manner by varying the surface texture of the ground contact surface by scratching, abrading, or sandblasting the surface, or by adding, for example, grooves, ridges, protrusions, or cavities. Although the valleys of the ridges and grooves, and the bases of cavities in the ground contact surface do not strictly speaking contact the ground, they are included as part of the description of ground contact surface in that they change the total surface area in contact with the ground and thus the gross traction characteristic of the surface.

[0035] In some embodiments, the traction characteristics of the ground contact surface of a shoe are substantially uniform at all points along the ground contact surface. In other embodiments, a traction characteristic of a ground contact surface of a shoe varies with respect to position along the ground contact surface. For example, a ground contact sur-

face may incorporate a smooth surface in one location and a rougher surface in another location. This results in a positionally variable traction characteristic, wherein the traction characteristic varies with respect to location with respect to the ground contact surface, and the amount of weight centered over each portion of the ground contact surface and shifts in weight caused by rolling the foot or leaning the body will result in changes in the friction between the ground contact surface of the shoe and the lane surface.

[0036] In some embodiments, a traction characteristic of a ground contact surface of a shoe varies depending on the direction force is applied to the shoe parallel to the ground contact surface. For example, a series of parallel grooves covering the ground contact surface will result in one traction characteristic in response to a force directed parallel to the ground contact surface and perpendicular to the grooves, and a different traction characteristic in response to the same magnitude force directed parallel to the ground contact surface and parallel to the grooves. This results in a directionally variable traction characteristic, wherein the traction characteristic changes with respect to the direction force is,applied parallel to the ground contact surface.

[0037] The exemplary embodiment of the invention shown in FIG. **1** depicts a footwear kit for a customized pair of bowling shoes having a left shoe (**70**), a right shoe (**80**), a sliding sole forepart (**90**), a traction sole forepart (**100**), a sliding shoe heel (**110**), and a traction shoe heel (**120**). Each forepart has a forepart ground contact surface (**130**) intended to cover and form at least the entirety of the forward ground contact section of the sole. Each forepart also has a forepart fastener surface (**140**) for fastening the forepart to the forepart receiving area (**170**) of the shoe.

[0038] Each shoe further incorporates a forepart receiving area (**170**). The forepart receiving area (**170**) has a distal margin (**180**) located rearward of the forward ground contact section of the sole, in some embodiments extending laterally across the width of the sole. In some embodiments, the distal margin (**180**) extends in a straight line from a point on the medial edge of the sole to a point on the lateral edge of the sole. In other embodiments the distal margin (**180**) describes a curve between a point on the medial edge of the sole and a point on the lateral edge of the sole. In still other embodiments as exemplified by FIG. **1**, the distal margin (**180**) incorporates an edge extending from a point on the medial edge of the sole and an edge extending from a point on the lateral edge of the sole that meet at an angle which advantageously provides a mechanism for indexing foreparts for rapid and consistent installation. In some embodiments, the meeting point is a sharp angle, while in other embodiments, the meeting point incorporates some curvature.

[0039] In some embodiments, the footwear kit further comprises a fastener (**220**) for attaching the forepart to the forepart receiving area. In some embodiments, the fastener is a two part fastening system, one part disposed on the forepart receiving area and the other disposed on the forepart. In one embodiment, the two-part fastener is an interlocking hook and pile fastener, such as that commonly sold under the tradename VELCRO®. In one embodiment, the two part fastener comprises one or more snaps.

[0040] In some embodiments, the fastener is in the form of protrusions on one part configured to engage openings in the other. In some embodiments, the protrusions are rigid or semi-rigid tongues which engage corresponding grooves. In some embodiments, the protrusions are cylindrical studs which engage corresponding holes. In some embodiments, the studs have oversized heads which force the holes to open as the two parts are pressed together, the hole then closing again on the shaft of the stud to make a more secure fastening. In some embodiments, the protrusions are b disposed on the forepart with corresponding openings in the forepart receiving area, while in other embodiments, the protrusions are disposed on the forepart receiving area with corresponding openings in the forepart. In still other embodiments, studs are provided on both the forepart and the forepart receiving area, with corresponding openings on the forepart receiving area and forepart.

[0041] In some embodiments, one part of a two part fastening system is disposed on the forepart receiving area (**170**) and the heel receiving area (**230**), and the other part of the two part fastening system is disposed on the heel fastener surface (**160**) and the forepart fastener surface (**140**). In one embodiment, the pile portion of an interlocking hook and pile fastener system is disposed on the forepart receiving area and the heel receiving area, and the hook portion of the interlocking hook and pile fastener system is disposed on the heel fastener surface and the forepart fastener surface. In other embodiments, the hook portion is disposed on the receiving areas, and the pile portion is disposed on the fastener surfaces of the forepart and heel.

[0042] In many embodiments as shown in FIGS. **5**A and **5**B, the forepart receiving area (**170**) is defined by the extent of the shoe sole that is covered by the one part of the two part fastening system that is disposed thereon. In these embodiments, the distal margin (**180**) of the forepart receiving area is the edge of the fastening system. In other embodiments as shown in FIGS. **6**A and **6**B, the distal margin (**180**) of the forepart receiving area (**170**) is a protrusion (**260**) molded or applied to the surface of the shoe sole, and the forepart receiving area is the portion of the sole forward of the protrusion forming the distal margin. In some embodiments as shown in FIGS. **6**A and **6**B, the protrusion is in the form of a ridge defining the rearmost extent of the forepart receiving area. In other embodiments, the distal margin is in the form of a discontinuous series of protrusions defining the rearmost extent of the forepart receiving area. In still other embodiments as shown in FIGS. **7**A and **7**B, the forepart receiving area (**170**) is recessed and the distal margin (**180**) is defined by the edge of the recess.

[0043] In most embodiments, as shown in FIG. **2**, the forepart is provided larger than the forepart receiving area (**170**) of each of the left shoe and right shoe, such that when a forepart is attached to the forepart receiving area, it extends beyond the sole of the shoe. In these embodiments, it is intended that the excess material (**240**) which would extend beyond the sole be removed from the forepart by the consumer or retailer such that the trimmed forepart generally matches the size and shape of the forepart receiving area of the shoe for which it is intended but can no longer be made to fit the opposite shoe. This advantageously allows the manufacturer to provide a single sliding forepart and a single traction forepart with shoes for right and left handed bowlers of any size, rather than either providing both a left and right sliding forepart and a left and right traction forepart, or requiring retailers to stock a selection of foreparts to be sold separately. Instead of maintaining a stock of foreparts of different sizes and handedness, a retailer can focus on maintaining a stock of foreparts with different traction characteristics,

enabling further customization to more nearly match the style of the bowler with the surface of the lane.

[0044] In some embodiments, a margin (**210**) of the forepart is shaped to match the distal margin (**180**) of the forepart receiving area (**170**). Alignment of the forepart margin (**210**) with the distal margin (**180**) of the forepart receiving area when the forepart is attached to the forepart receiving area (**170**) allows the forepart to be rapidly and consistently attached in the proper orientation and position with respect to the shoe. This is advantageous for a bowler who frequently changes foreparts to match differing lane conditions, or for foreparts having directional or locational variations in traction characteristics. To enable rapid and consistent alignment, the match between the forepart margin (**210**) and the distal margin (**180**) does not need to be exact. For example, if the distal margin (**180**) incorporates two edges meeting at an angle as shown in FIG. **1**, it is sufficient for the margin (**210**) of the forepart to have a portion of edge that fits against each edge of the distal margin, potentially leaving a gap at the angle to enable the forepart to be removed easily by inserting a finger into the gap. The margin (**210**) of the forepart is said to match the distal margin (**180**) of the forepart receiving area (**170**) when alignment of the margin (**210**) and distal margin (**180**) consistently aligns the forepart with the forepart receiving area.

[0045] In some embodiments, the foreparts are marked with size guides (**200**) as shown in FIGS. **8**A, **8**B, and **8**C to aid in initial fitting of the foreparts to the shoes. In some embodiments, the size guides (**200**) are marks printed on a surface of the forepart to indicate excess material (**240**) to be removed. In other embodiments, the size guides (**200**) are molded into a surface of the forepart as grooves to guide cutting the forepart to fit. In other embodiments, the size guides (**200**) are perforations in the forepart. In further embodiments, the size guides (**200**) are combinations of markings, grooves, and perforations. For example, a size guide is perforated into the forepart and marked to make the perforated guide easily visible. In still further embodiments, the size guides are printed on a removable backing protecting a surface of the forepart.

[0046] In further embodiments, a separate size guide is provided incorporating one part of the two part fastening system complementary to that disposed on the fastener surface of the forepart. In this embodiment, the size guide is attached to the forepart by means of the fastening system, the excess forepart material is removed, the size guide is detached, and the forepart is then attached to the forepart receiving area of the shoe.

[0047] In some embodiments, the forepart incorporates a second margin (**250**) which also matches the distal margin (**180**) of both the left and right shoe, as exemplified in FIGS. **8**B and **8**C. This advantageously expands the types of directionally and positionally variable traction characteristics that can be applied to a forepart without necessitating the provision of a separate forepart for a left and right shoe.

[0048] In one example having a positionally variable traction characteristic, a forepart intended to provide a lower traction characteristic under the big toe and ball of the sliding sole and a higher traction characteristic across the rest of the forward ground contact surface of the shoe is formed as shown in FIG. **8**C, with the center of the forepart having a lower traction characteristic than the surrounding forepart material. The forepart is cut to incorporate a first margin (**210**) if the forepart is intended to form the forepart for a left shoe, and cut to incorporate the second margin (**250**) if the forepart is intended to form the forepart for a right shoe.

[0049] In another example, a forepart having a directionally variable traction characteristic intended to have its highest traction in response to a force extending diagonally from the center of the ball of the foot to the tip of the big toe is prepared as shown in FIG. **8**C, such that cutting the forepart to incorporate the first margin (**210**) will give a forepart having a directionally variable traction characteristic suitable for a right foot, and cutting the forepart to incorporate the second margin (**240**) will give a forepart having a directionally variable traction characteristic suitable for a left foot. In another embodiment having a directionally variable traction characteristic, the ground contact surface of the forepart is ridged with a series of concentric curves such that the coefficient of friction is higher in response to a force directed inward or outward from the curve and lower in response to a force directed along the arc of the curve. This embodiment advantageously allows lower resistance to movement for a bowler twisting his foot in a circle, and higher resistance to pushing off along any orientation in a straight line. The configuration shown in FIG. **8**C advantageously allows the center of the concentric curves to be optimally located beneath the ball of foot next to the big toe for either a left handed bowler or a right handed bowler by selecting the appropriate margin to align with the distal margin (**180**) before selecting the excess forepart material (**240**) to be removed.

[0050] Additionally, some bowlers prefer a forepart having a positionally variable traction characteristic having a higher traction characteristic at the rear portion of the forward ground contact surface and a lower traction characteristic at the forward portion of the forward ground contact surface, while other bowlers prefer a higher traction characteristic at the forward portion and a lower traction characteristic at the rear portion of the forward ground contact surface. In one embodiment, the forepart exemplified in FIG. **8**B is formed having a first traction characteristic on the portion adjacent to a first margin (**210**) and a second traction characteristic on the portion adjacent to the second margin (**250**). The forepart is then cut to incorporate either the first or second margin depending on whether the user prefers the first or second traction characteristic at the rear of the forward ground contact surface.

[0051] In one embodiment, the distal margin (**180**) of the forepart receiving area is in the shape of an arc of a circle, and the forepart periphery includes an edge defining a larger arc of a circle of the same radius, so that any portion along the arc of the forepart periphery forms a forepart margin (**210**) suitable for matching the shape of the distal margin (**180**). This embodiment is advantageous for allowing the bowler to customize the orientation of a forepart having directionally variable traction characteristics to match his or her bowling style. The exact orientation of the directionally variable traction characteristic can be selected by rotating the forepart margin against the distal margin, and when the desired orientation is achieved, the excess forepart material is marked and removed. The resulting forepart is easily removed and reattached without altering the orientation of the directionally variable traction characteristic relative to the shoe by indexing the margin (**210**) with the distal margin (**180**) and the side of the forepart with the periphery of the sole.

[0052] In some embodiments, a plurality of foreparts is provided, each forepart having a ground contact surface with a different traction characteristic, advantageously allowing

the bowler to select and interchange the forward ground contact surface of the shoes to complement the style of the bowler and the surface of the lane. The indexing achieved by providing a margin of the forepart matching the distal margin of the forepart receiving area allows a forepart with a multiplicity of traction characteristics varying positionally and directionally to be rapidly and easily interchanged with the traction characteristics of the forepart consistently aligned to the shoe on attachment.

[0053] While the present invention has been particularly described, it is evident that many alternatives, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. It is therefore contemplated that the appended claims will embrace any such alternatives, modifications, and variations as falling within the true scope and spirit of the present invention.

I claim:

1. A footwear kit comprising a forepart having a length and width substantially larger than a length and width of a forepart receiving area of each of a left shoe and right shoe of a pair of shoes such that the forepart will cover the entire forepart receiving area of each of the left and right shoe, each said forepart receiving area extending forward from an arch portion of the shoe to a toe edge of the shoe including the entire periphery of the sole forward of the arch portion of the shoe, each forepart receiving area further comprising a distal margin extending laterally across the shoe at the rear of the forepart receiving area of the shoe; wherein said forepart has a periphery comprising at least one margin matching the shape of the distal margin of the forepart receiving area of each of the left and right shoe.

2. The footwear kit of claim **1** wherein the forepart further comprises a ground contact surface having a plurality of traction characteristics.

3. The footwear kit of claim **1** wherein the forepart further comprises a ground contact surface having a traction characteristic that differs with a direction of force applied, such that the forepart exhibits a first traction characteristic in response to a force applied from a first direction parallel to the ground contact surface that is different from a second traction characteristic in response to a force applied from a second direction parallel to the ground contact surface, and wherein alignment of the margin of the forepart to the distal margin of the forepart receiving area establishes an orientation of the traction characteristics of the forepart with respect to the shoe.

4. The footwear kit of claim **1** wherein the forepart further comprises a ground contact surface having a geometry of traction characteristics wherein a first portion of the ground contact surface has a first traction characteristic and a second portion of the ground contact surface has a second traction characteristic that is different from the first traction characteristic, and wherein alignment of the margin of the forepart to the distal margin of the forepart receiving area establishes the geometry of traction characteristics with respect to the shoe.

5. The footwear kit of claim **3** wherein the forepart further comprises at least two margins matching the shape of a distal margin of the forepart receiving area of the shoe, wherein aligning a first margin of the forepart with the distal margin of the forepart receiving area results in a first orientation of traction characteristics with respect to the shoe, and aligning a second margin of the forepart with the distal margin of the forepart receiving area results in a second orientation of traction characteristics with respect to the shoe differing from the first orientation.

6. The footwear kit of claim **4** wherein the forepart further comprises at least two margins matching the shape of a distal margin of the forepart receiving area of the shoe, wherein aligning a first matching margin with the distal margin results in a first geometry of traction characteristics with respect to the shoe, and aligning a second matching margin with the distal margin results in a second geometry of traction characteristics with respect to the shoe, said second geometry differing from said first geometry.

7. The footwear kit of claim **1** wherein the forepart further comprises a plurality of size guides whereby removal of the forepart material outside the size guide corresponding to a size and handedness of a shoe results in a forepart having the same size and shape as the forepart receiving area of the shoe.

8. The footwear kit of claim **7** wherein the size guides are selected from the group consisting of: markings on a forepart surface; grooves on a forepart surface; perforations through the forepart; and combinations thereof.

9. The footwear kit of claim **1** wherein the forepart further comprises a ground contact surface and a fastener surface, wherein sizing the forepart to fit the forepart receiving area of the left shoe when properly attached produces a forepart with a forepart periphery that differs from the periphery of the forepart receiving area of the right shoe.

10. A footwear kit comprising:

a shoe having a sole with a forepart receiving area extending longitudinally from a toe end of the shoe distally to an arch portion of the shoe and extending laterally across an entire width of the sole, the forepart receiving area further comprising a distal margin;

a forepart having at least one margin matching the distal margin of the forepart receiving area, a length exceeding the longitudinal length of the forepart receiving area, and a width exceeding the lateral width of the forepart receiving area; and

a fastener for removably attaching the forepart to the forepart receiving area.

11. The footwear kit of claim **10**, wherein the fastener is an interlocking hook and pile two-part fastener system and the forepart receiving area is defined by an area of the sole covered by one part of the two-part fastener system.

12. The footwear kit of claim **10**, wherein the distal margin is a protrusion from the sole.

13. The footwear kit of claim **10**, wherein the forepart receiving area is recessed into the sole and the distal margin is defined by an edge of the recess.

14. A footwear kit comprising:

a left shoe and a right shoe, each shoe having a sole comprising a forepart receiving area extending longitudinally from a toe end of the shoe rearward to an arch portion of the shoe and extending laterally across an entire width of the sole, the forepart receiving area further comprising a distal margin;

a forepart having a length greater than a longitudinal length of the forepart receiving area of both the left shoe and right shoe and a width greater than the lateral width of the forepart receiving area of both the left shoe and right shoe, such that the forepart when attached to the left shoe or the right shoe covers the entire forepart receiving area of the shoe and extends beyond the sole; said forepart further comprising at least one margin shaped to fit the distal margin of each of the left shoe and the right shoe;

each forepart receiving area further comprising a fastener for removably securing the forepart to the shoe.

15. The footwear kit of claim **14** comprising a first forepart and a second forepart, wherein the first forepart has a traction characteristic different from a traction characteristic of the second forepart.

16. The footwear kit of claim **14** wherein the forepart comprises at least two margins shaped to fit the distal margin of both the left shoe and the right shoe individually, such that either of the two forepart margins can be fitted to the distal margin of either the left shoe or the right shoe.

17. The footwear kit of claim **14**, wherein the forepart receiving area of the left shoe differs from the forepart receiving area of the right shoe in handedness, such that a forepart cut to the size and shape of the forepart receiving area of the left shoe differs in size and shape from a forepart cut to the size and shape of the forepart receiving area of the right shoe.

18. The footwear kit of claim **14**, wherein the forepart further comprises a plurality of size guides for removing material to match the forepart size and shape to the shoe size and handedness of the left or right shoe.

19. The footwear kit of claim **18** where the size guides are selected from the group consisting of markings on the forepart, indentations in the forepart surface, grooves in the forepart surface, perforations through the forepart, and combinations thereof.

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