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(54) CLEATED SPORTS SHOES

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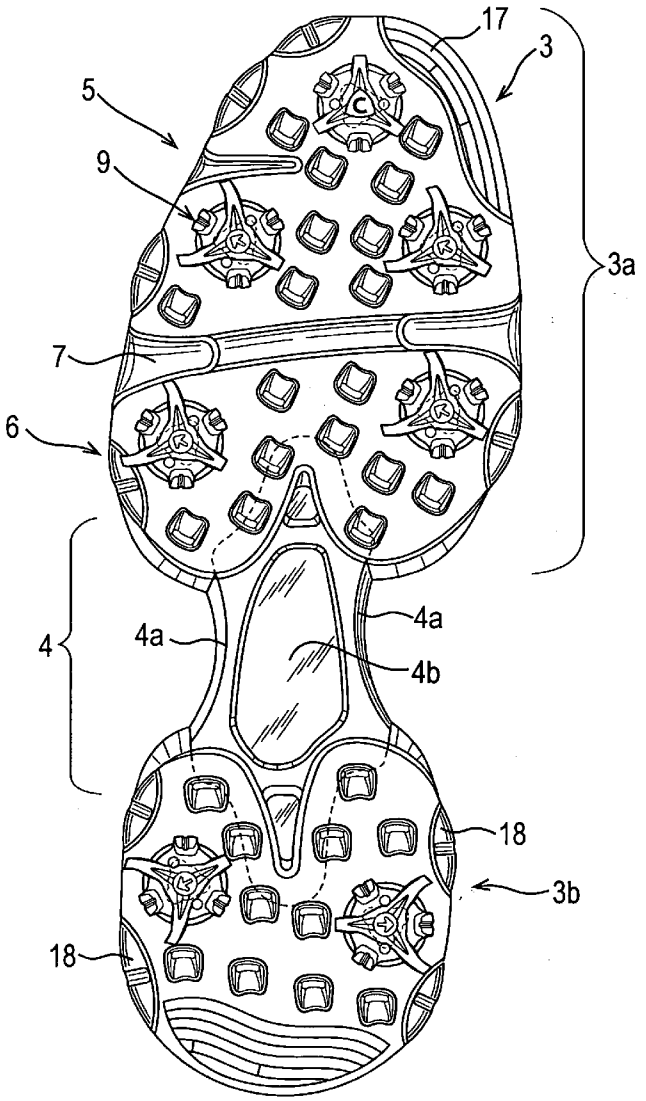
(57) **ABSTRACT**

A golf shoe and a sole for a golf shoe wherein a number of cleats are provided. The cleats are directional in that they provide different amounts of resistance to lateral movement relative to the ground in different radial directions. The sole advantageously comprises a forepart and a heel part joined by torsion resistant beam. The sole advantageously has a roll edge region at the inside side edge of the toe, and is further advantageously formed on the outside edge of the sole with embossments which extend downwardly and outwardly of the sole.



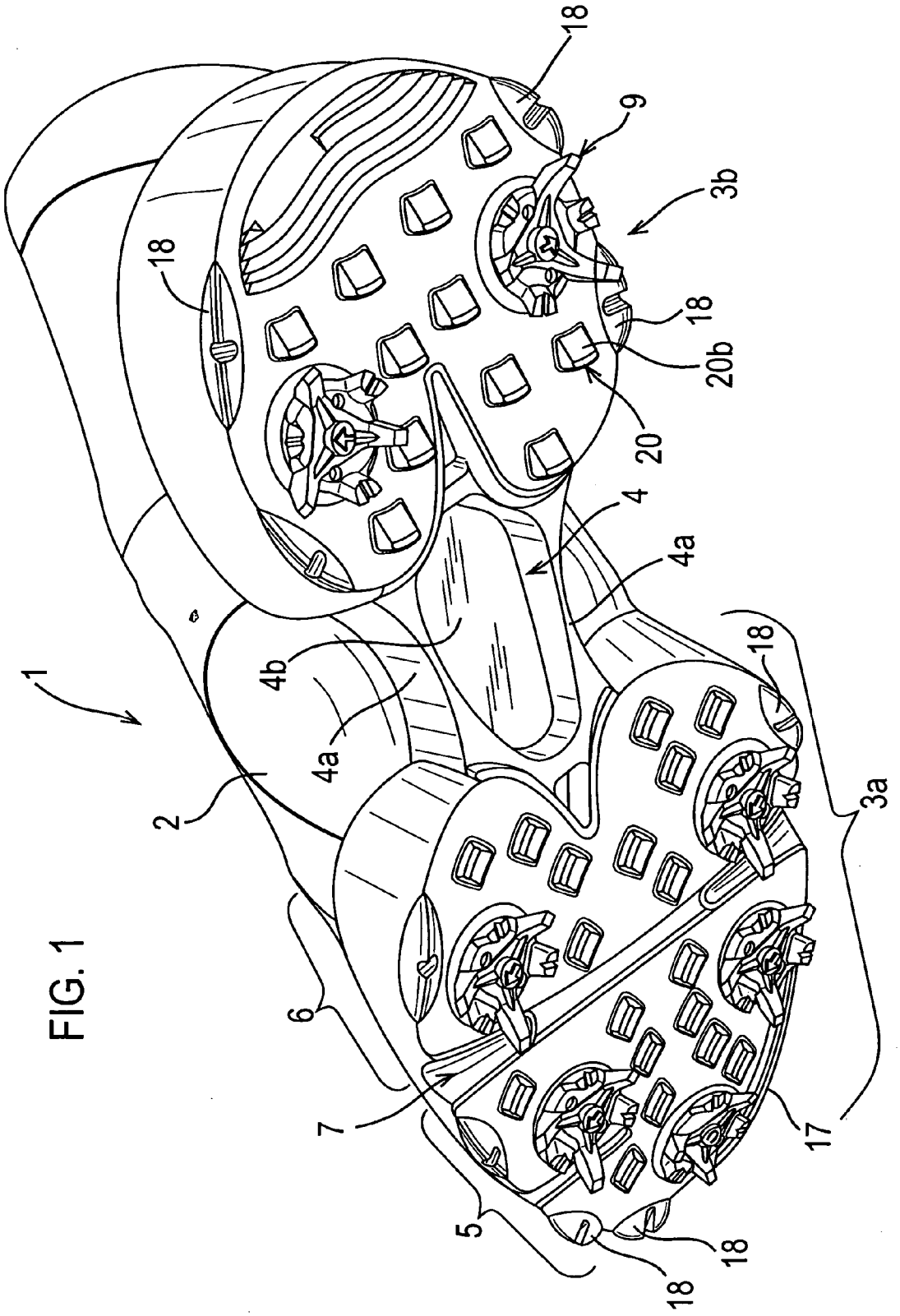


FIG. 1

FIG. 2

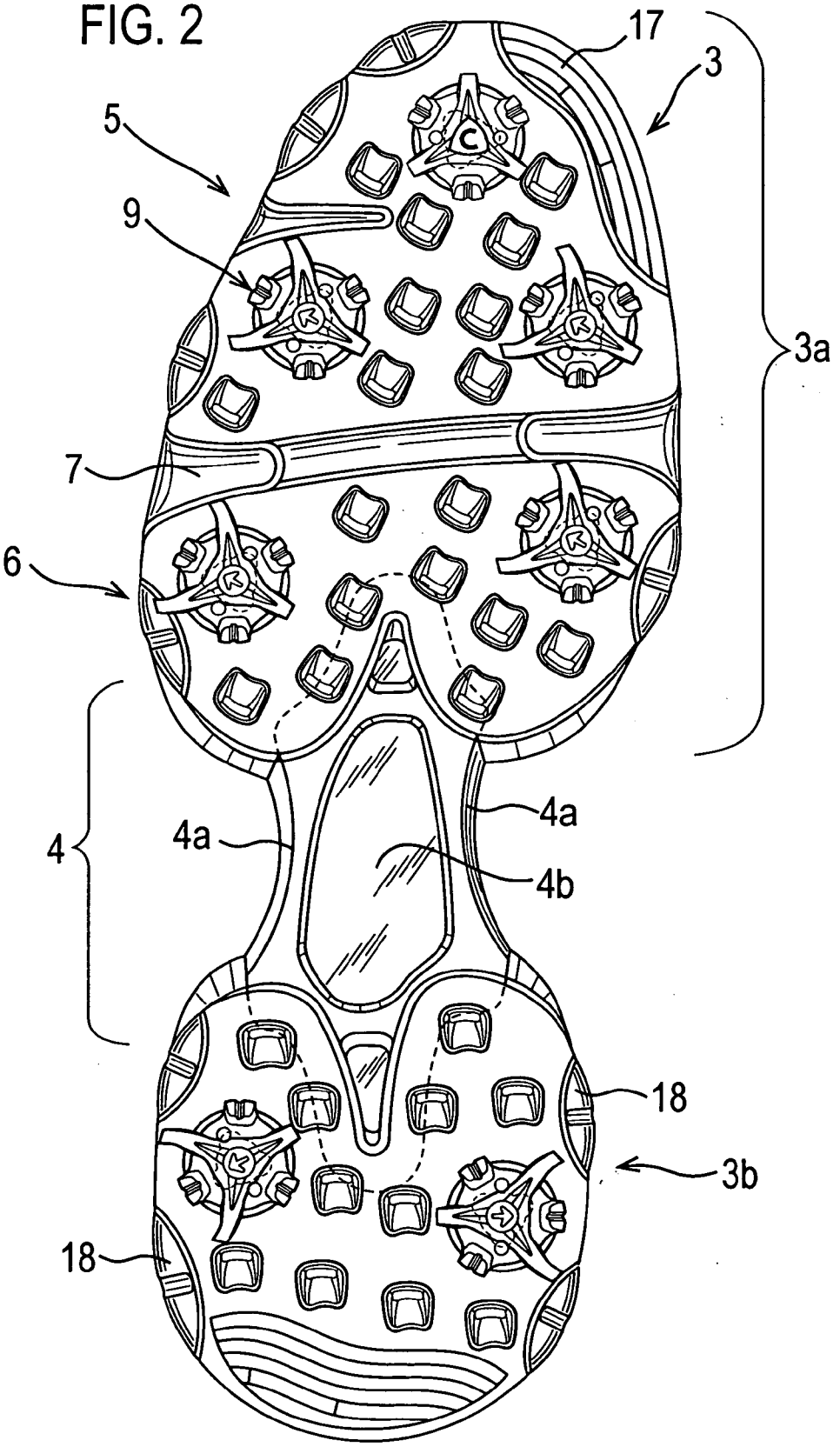


FIG. 3

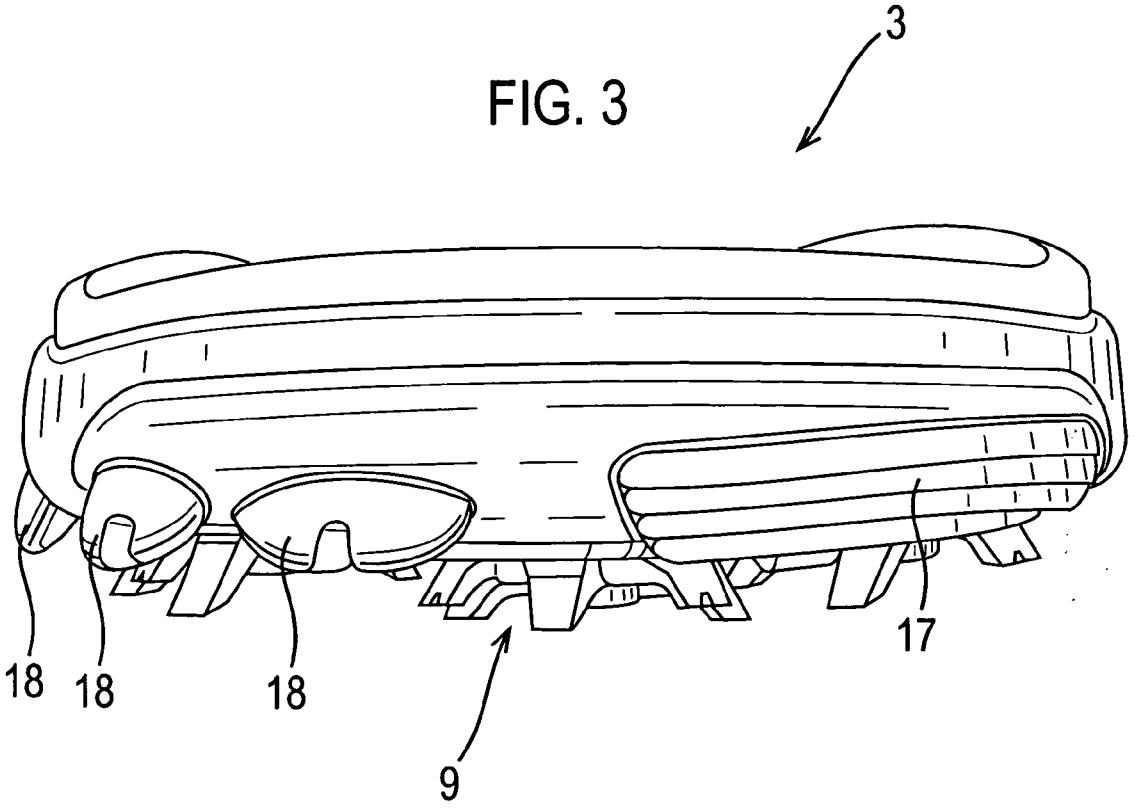


FIG. 4

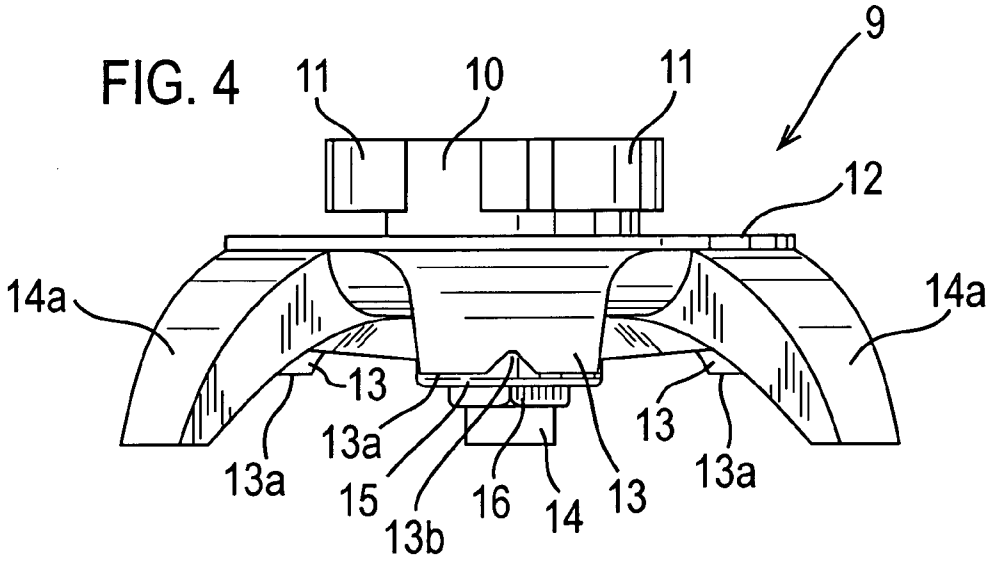
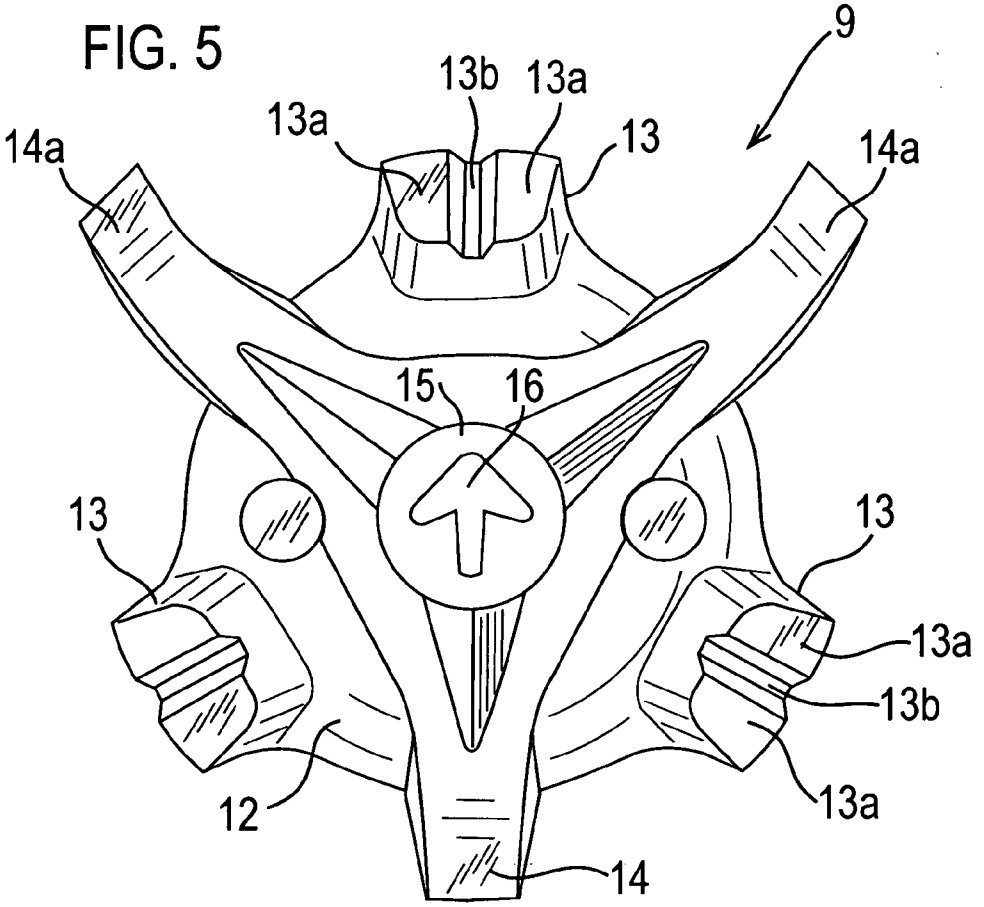

9
11
10
11
12
14a
14a
13
13a
13a
15
13b
16
14
13
13
13a

FIG. 5


9
13b
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13
14a
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16
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13
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13b
13a
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14

FIG. 6

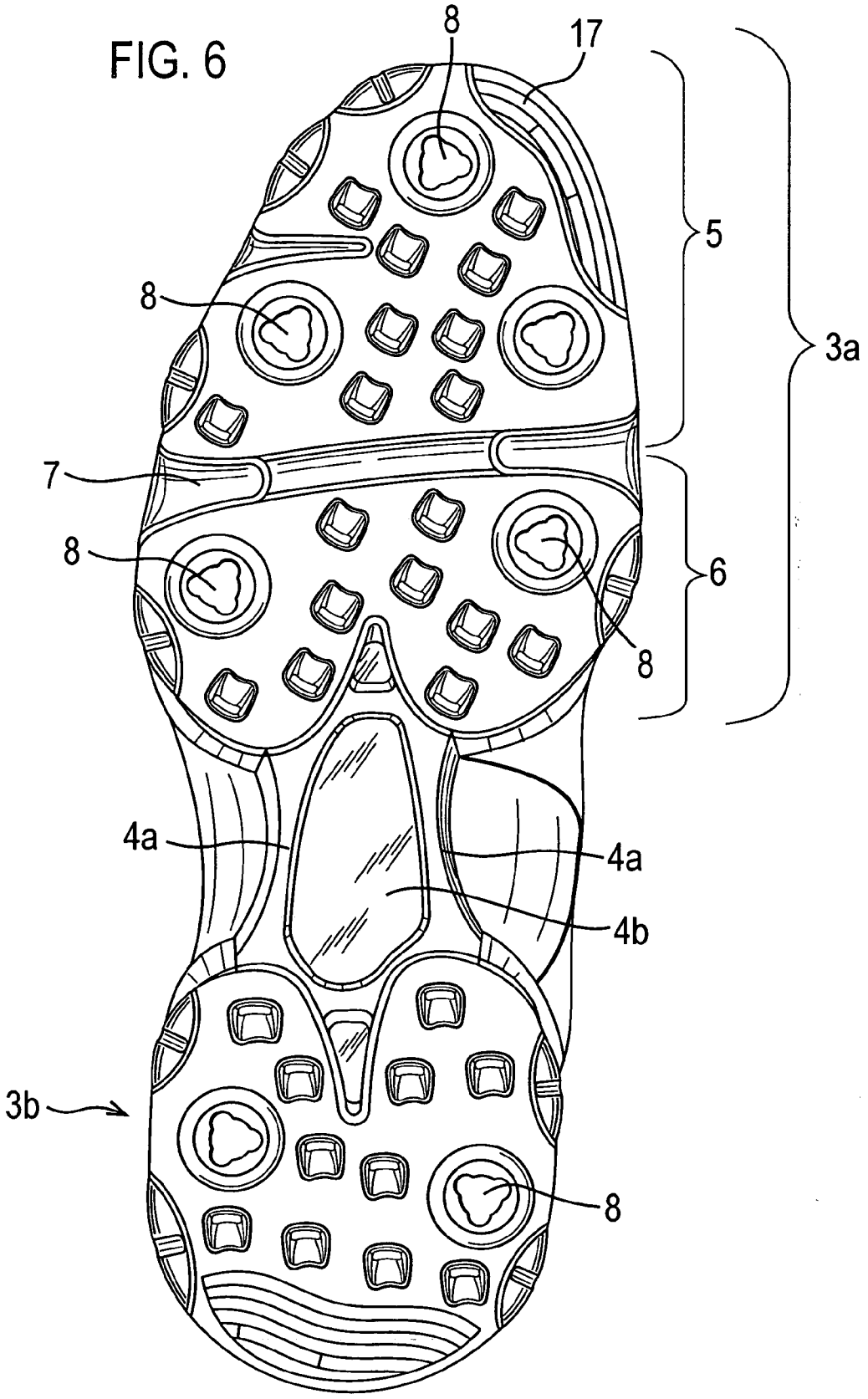


FIG. 7

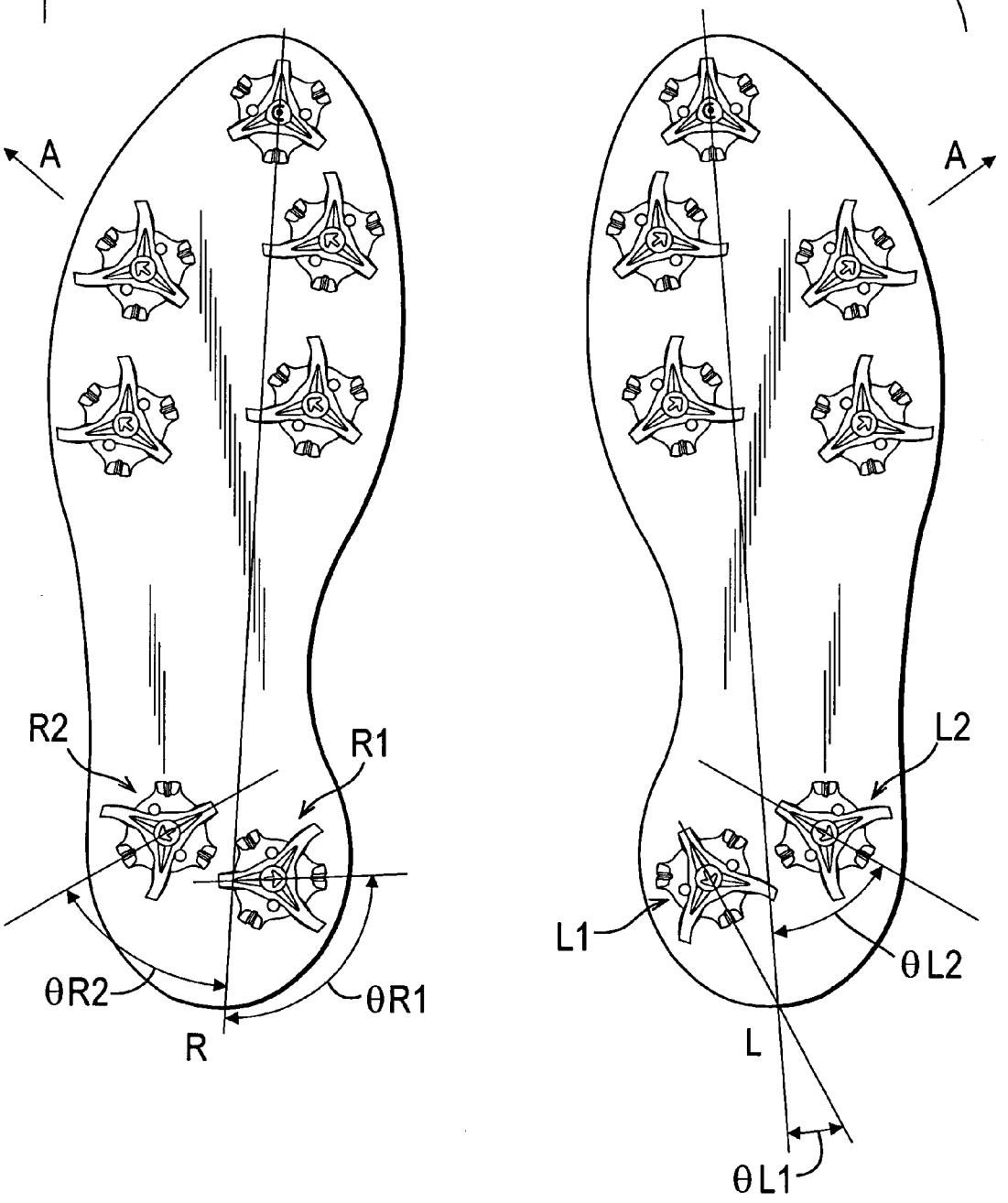


FIG. 8

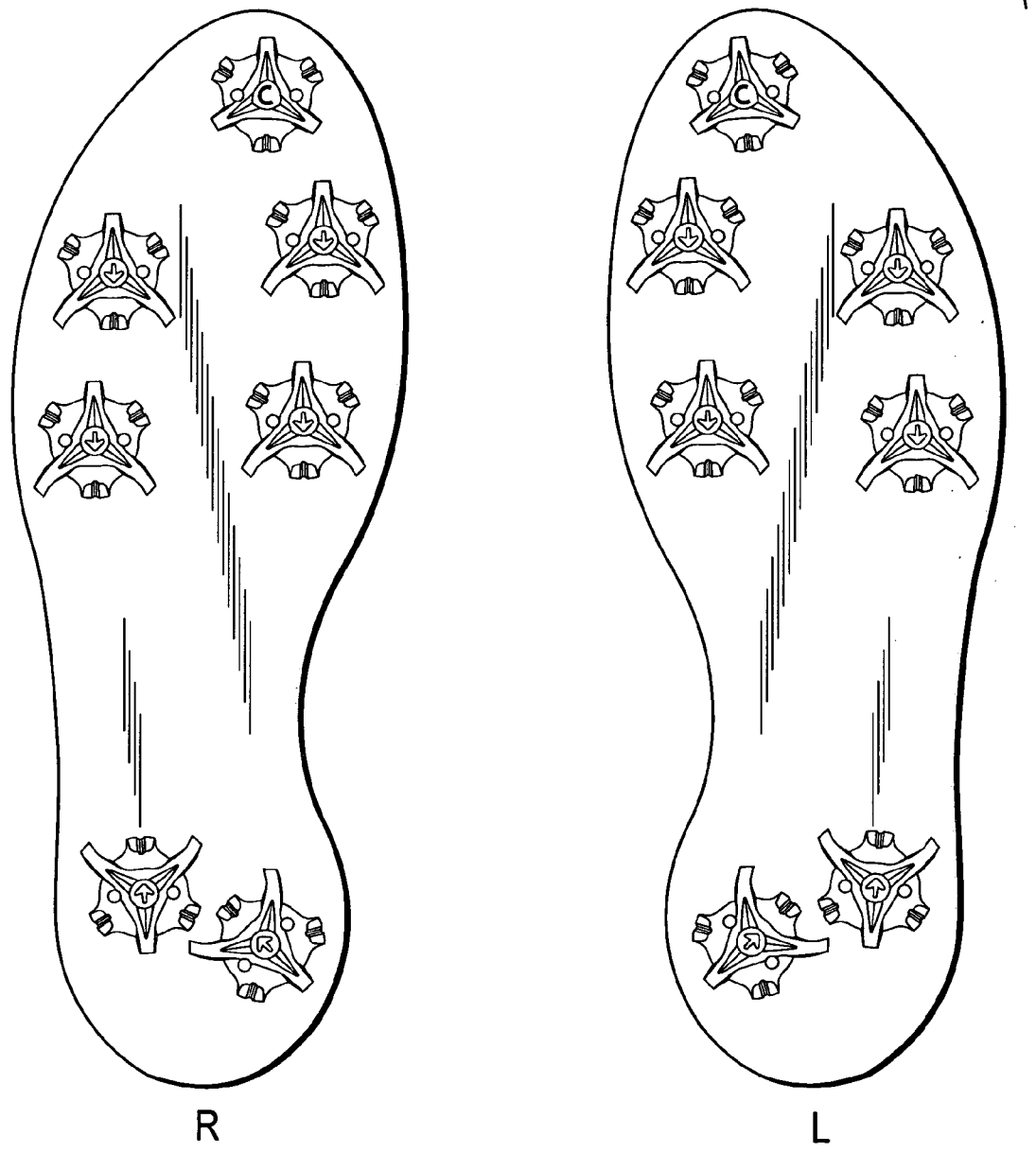
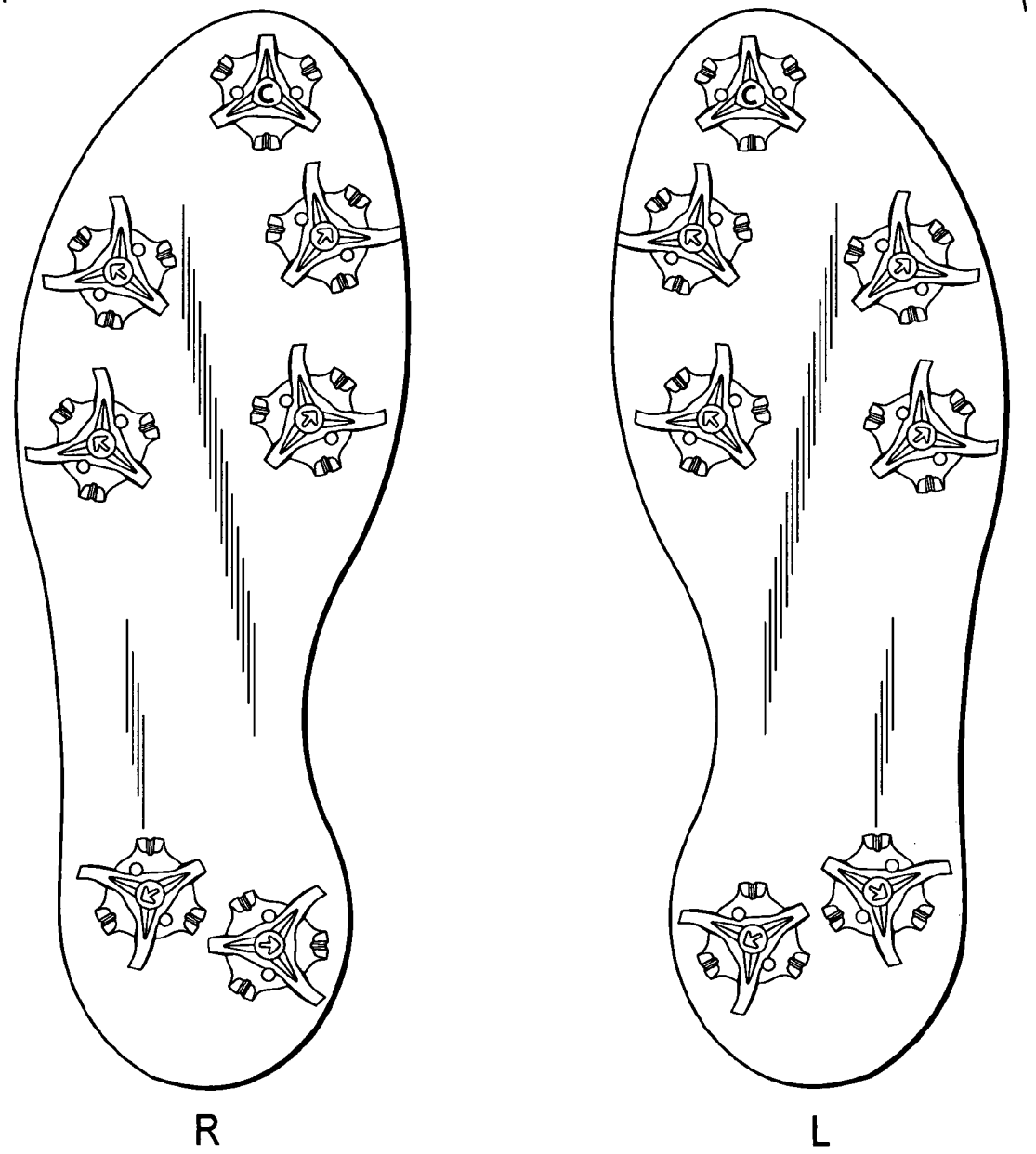


FIG. 9



CLEATED SPORTS SHOES

BACKGROUND OF THE INVENTION

[0001] The present invention relates to footwear, and is particularly concerned with sporting footwear having cleated soles, such as golf shoes, cricket boots or the like.

[0002] Cleated soles are provided for golf shoes, to enable the golfer to enjoy a firmer stance while making a swing at the golf ball, and to provide enhanced traction during walking. Conventional cleat designs comprise protrusions extending from the sole of the golf shoes, either in the form of a single generally cylindrical or conical stud, or in the form of a claw having a number of identical radially diverging tines or prongs spaced symmetrically about a central axis.

[0003] Such conventional cleats provide resistance to relative movement of the shoe over the ground, the resistance being substantially equal in all radial directions of the cleat.

[0004] In the particular sequence of movements performed by a golfer when making a golf swing, the applicants have found that reaction forces between the shoe and the ground act in particular azimuth directions in relation to the direction of the golf swing at different intervals during the golf swing. Furthermore, foot movements of right-handed golfers during a swing are such that the left foot remains substantially flat on the ground and the right foot is lifted and rolled inwards, the opposite effect being seen in left-handed golfers where the right foot remains substantially flat on the ground and the left foot is lifted and rolled inwards.

[0005] A first objective of the present invention is to provide a sports shoe such as a golf shoe with a cleated sole, in which resistance to lateral movement of the shoe, and particularly the heel of the shoe, with relation to the ground is different in different azimuth directions relative to the shoe, to provide horizontal reaction forces during a golfer's swing that enhance performance.

[0006] Furthermore, the applicants have determined that rolling movements of the golfer's feet about axes extending from toe to heel occur during the golf swing, and resistance to "outward" or lateral rolling of the golfer's feet is beneficial, while facilitating "inward" or medial rolling of the golfer's feet can improve the golfer's performance during the swing.

[0007] A further objective of the invention is to provide a golf shoe with a sole having formations which facilitate inward rolling of the toe, while resisting outward rolling of the shoe relative to the ground.

[0008] A further objective of the invention is to provide a golf shoe with a sole having a forepart and a heel part joined by a structure resiliently resistant to torsion of the shoe about its longitudinal axis which tends to twist the heel relative to the forepart of the sole.

SUMMARY OF THE INVENTION

[0009] A first aspect of the invention provides a pair of golf shoes having "directional" cleats which each provide a maximum amount of lateral movement resistance in a principal radial direction relative to the axis of the cleat and lesser amounts of lateral movement resistance in other radial directions, wherein the cleats are arranged such that the heel part of each shoe has a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, and wherein for a right-handed golfer the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly.

[0010] In a preferred embodiment for a right-handed golfer, the cleats are arranged such that the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 10 to 40 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at from 75 to 105 degrees to the rearward centreline of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe.

[0011] More preferably, the cleats are arranged such that the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 20 to 30 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 50 to 60 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at from 85 to 95 degrees to the rearward centreline of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 60 degrees to the centreline of the shoe.

[0012] Most preferably, the cleats are arranged such that the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at about 25 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at about 90 degrees to the centreline of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe.

[0013] This aspect of the invention also provides a pair of golf shoes having "directional" cleats which each provide a maximum amount of lateral movement resistance in a principal radial direction relative to the axis of the cleat and lesser amounts of lateral movement resistance in other radial directions, wherein the cleats are arranged such that the heel part of each shoe has a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, and wherein for a left-handed golfer the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly.

[0014] Advantageous embodiments for the left-hander have cleats are arranged such that the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 10 to 40 degrees, preferably from 20 to 30 degrees, and most preferably at about 25 degrees to the centreline of the shoe, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees, preferably from 50 to 60 degrees, and most preferably at about 55 degrees to the centreline of the shoe, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side at from 75 to 105 degrees, preferably from 85 to 95 degrees, and most preferably at about 90 degrees to the rearward centreline of the shoe, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees, preferably from 50 to 60 degrees, and most preferably at about 55 degrees to the centreline of the shoe.

[0015] A further aspect of the invention provides a shoe in which a plurality of such "directional" cleats are adjustably fixed to the shoe sole in order to provide differing arrangements of directionality for the array of cleats. The cleats are preferably attached to the shoe sole by mounting arrangements which provide for each cleat to be mounted to the shoe in one of a plurality of angular orientations relative to an axis normal to the shoe sole, so that the direction of maximum lateral resistance of the cleats may extend either in the preferred directions set out above, or in one of a number of other directions relative to the shoe's toe to heel direction.

[0016] In a particular embodiment, the shoe sole is provided with a plurality of sockets into which cleats are mountable in a plurality of alternative positions, and each shoe may have a number of non-axisymmetrical "directional" cleats mounted in some of the sockets while others of the sockets receive axisymmetrically-formed "non-directional" cleats.

[0017] The sockets are preferably triangular in form, with the cleats being mountable, by a bayonet-type fixing, in one of three angular positions relative to the sole. The cleats are formed with a triangular or trilobal bayonet stem cooperable with the socket, and a "directional" cleat formation having a number of radial grip arms. In a preferred form, the cleat has a diametral axis of symmetry and is formed with three short grip arms and three longer grip arms alternately spaced evenly about its circumference, the three longer arms including two which curve toward each other. The relative angular orientation of the trilobal stem and the diametral axis of symmetry may be the same for all cleats. Cleats with different relative alignments of the trilobal stem and the diametral axis of symmetry may be provided, to enable different relative angular orientations of the cleat direction and the socket direction to be achieved.

[0018] Advantageously each shoe has an array of five sockets on the forepart of the shoe, and two further sockets on the heel part.

[0019] A further aspect of the invention provides a sole for a cleated shoe such a golf shoe, wherein the sole comprises a heel block and a forepart block formed from elastometric material and joined together by a beam formed from substantially rigid material shaped to resist torsion between the heel part and the forepart of the sole. The forepart block advantageously has a transverse line of reduced bending strength, allowing the front region of the forepart to pivot relative to the rear region of the forepart by bending of the forepart along this transverse line. The transverse line is most preferably constituted by a "flex-groove" extending across the underside of the forepart of the sole. In an advantageous embodiment, the torsion resisting beam is attached to the forepart of the sole by being embedded therein, the beam extending from the rear edge of the forepart of the sole towards, but not as far as, the transverse groove.

[0020] In addition to the beam joining the forepart of the sole to the heel part, the shoe further advantageously comprises a resilient contoured insole plate extending over the heel part and forwardly to overlie the rear part of the forepart of the sole. The insole plate has upturned rear and side edges to receive and locate the wearers heel in relation to the insole plate, and is securely fixed to the heel part of the sole and to the rear of the forepart of the sole. Relative twisting of the two parts of the sole is resisted by the resilience of the insole plate, as well as by the resilience of the beam.

[0021] To facilitate inward or medial rolling movement of a golfer's foot while making a swing, in a further aspect of the invention the forepart of the sole has, on its medial edge, a rounded contour smoothly blending the underside of the sole with the side surface of the sole. This "rolling edge" of the sole preferably extends from the toe end to a point intermediate the length of the forepart of the sole.

[0022] To counter a tendency of the golfer's foot to roll outwardly during a swing, a yet further aspect of the invention provides the outside edge of the sole with embossed or protruding areas to provide additional support at the outer edge. The embossed areas preferably extend downward and outward from the outer lateral edge of the sole, and may be provided on the forepart of the sole and/or on the heel part. Embossed areas may also be provided on the inside edge of the heel part, and on the inside edge of the rear region of the forepart of the sole, so that inward rolling of the shoe is resisted until the golfer's heel is lifted off the ground.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] Further aspects and features of the invention will be apparent from the following description of the preferred embodiment of the invention, with reference to the drawings, in which like reference numbers are used to designate corresponding parts. In the drawings:

[0024] **FIG. 1** is an underneath perspective view of a first embodiment of a left golf shoe according to the present invention;

[0025] **FIG. 2** is an underneath view of the sole of a right golf shoe corresponding to that of **FIG. 1**;

[0026] **FIG. 3** is a front view of the sole of **FIG. 2**;

[0027] **FIG. 4** is a side view of a cleat for a sports shoe;

[0028] **FIG. 5** is an underneath view of the cleat of **FIG. 4**;

[0029] **FIG. 6** is an underneath view of a right shoe corresponding to the shoe of **FIG. 1**, with the cleats removed to show the sockets; and

[0030] FIGS. **7** to **9** are schematic underneath views of shoe pairs, illustrating different cleat orientation arrangements.

DETAILED DESCRIPTION OF THE EMBODIMENT

[0031] Referring now to the Figures, **FIG. 1** is an underneath perspective view of a left golf shoe **1**. The shoe comprises an upper **2** and a sole **3**, the sole comprising a forepart **3***a* and a heel part **3***b*. Extending between the forepart **3***a* and the heel part **3***a* of the sole **3** is a torsion beam **4** consisting of two generally vertically extending flanges **4***a* and a central horizontal web **4***b* joining the two flanges **4***a*.

[0032] The forepart **3***a* of the sole is divided into a frontal region **5** and a rear region **6** by a transverse "flex-groove"**7**. The transverse groove **7** defines a preferred flexure axis for the frontal region **5** of the forepart **3***a* of the sole to pivot relative to the rear region **6**.

[0033] As can be seen in **FIG. 6**, the sole is provided with a number of sockets **8** to receive cleats **9** to enhance the grip between the shoe and the ground. In the embodiment shown, the frontal region **5** of the forepart **3***a* of the sole is provided with three sockets **8**, one adjacent the toe end and two further sockets spaced laterally and behind the toe end socket. The rear region of the forepart **3***a* of the sole is provided with two sockets **8**, adjacent the side edges of the sole.

[0034] The heel part **3***b* is provided with two sockets **8**, positioned adjacent the side edges of the heel part **3***b*.

[0035] Cleats **9** are mounted in the sockets **8** to provide additional grip for the wearer of the shoe. An example of a cleat **9** is illustrated in **FIGS. 4 and 5**, **FIG. 4** being a side view of the cleat and **FIG. 5** being an underneath plan view.

[0036] The cleat **9** comprises a stem **10** having three radial projections **11** extending from one end of the stem **10**. The main body **12** of the cleat is substantially disk-like, and is coaxial with the stem **10**. From the edge of the main body **12**, three short legs **13** and three long legs **14** extend downwardly and outwardly, the long and short legs being positioned alternately round the circumference of the main body **12**. The three short legs **13** are substantially identical with each other, and are formed at their free ends with a pair of ground-engaging end surfaces **13***a* divided by a radial groove **13***b*. The end surfaces **13***a* of the three short legs **13** are substantially coplanar.

[0037] Of the three longer legs **14**, as can be seen in **FIG. 5**, the two uppermost longer legs **14***a* are curved toward each other, and are longer than the remaining long leg **14**. The tips of the long legs **14** and **14***a* extend below the plane of the end surfaces **13***a* of the short legs, as can be seen in **FIG. 4**.

[0038] The main body **12** of the cleat **9** has a downwardly-extending central stud **15** whose end surface is substantially coplanar with the end surfaces **13***a* of the short legs **13**. In **FIG. 4**, the central stud **15** is shown slightly longer than the short legs **13**, for clarity. The end surface of the central stud **15** is formed with an embossed arrow **16**. The direction of the arrow is aligned so that the arrow points in a direction symmetrically between the longer legs **14***a* of the cleat **9**.

[0039] The cleats **9** are mounted to the sole of the shoe by inserting the stem **10** of the cleat into the socket, and thereafter rotating the cleat through an angle of approximately 60 degrees relative to the socket, about the axis of the stem **10**. The radial projections **11** of the stem engage with undercut projections in the socket **8** to retain the cleat **9** in the socket. Since the sockets **8** and the stem **10** and radial projections **11** are arranged in a symmetrical fashion, each cleat **9** may be inserted into its respective socket **8** in one of three angular positions, and thereafter rotated to lock the cleat **9** into position, again in a selected one of three angular positions.

[0040] The elongated nature of the longer arms **14***a* of the cleat **9** imparts to the cleat a "directional" nature, in that the cleat resists movement relative to the ground preferentially in the radial direction of the longer arms **14***a*. When the cleat illustrated in **FIGS. 4 and 5** is engaged with the ground, lateral movement of the cleat along the ground in the direction of the arrow **16** encounters maximum resistance, while lateral movement of the cleat along the ground in other directions encounters less resistance due to the shorter lengths of the legs **13** and **14** as compared to the legs **14***a*.

[0041] Since the cleats **9** can be attached to the shoe **1** in different angular orientations, the "directional" nature of the cleats allows the user of the shoes to position the cleats in a desired orientation to resist movement of the shoe relative to the ground in specific directions.

[0042] While the cleats illustrated and described above comprise three short legs **13**, one longer leg **14** and two longest legs **14***a*, the cleats **9** may have other configurations provided that they exhibit different resistance to lateral movement in different angular directions about the axis of the stem **10**. Cleats having four short legs, two long legs, and two legs of intermediate length are foreseen, with the long legs and short legs alternately positioned about the stem axis and the long legs adjacent one another to define an increased resistance direction between them.

[0043] **FIGS. 7, 8** and **9** are underneath views of shoe pairs, showing alternative alignment configurations for the directional cleats **9**. The direction of maximum resistance for each cleat is indicated by the arrow **16** formed on the end of the central stud **15** of each cleat **9**. The arrow **16** also serves to indicate wear of the cleats, as the arrow **16** contacts the ground when the shoe is in use. As the cleat is worn down by use, the arrow is gradually worn down until the end of the central stud if flattened. The arrow **16** is preferably formed from a material of a different colour from that of the stud **15**, so that wear of the arrow is clearly visible, and when the arrow is completely worn away the colour difference may disappear, or the shape of the differently-coloured area may change from an arrow to, for example, a circle.

[0044] In **FIG. 7**, an arrangement of the cleats which in experiments has provided most effective grip during a golf swing is shown. In this arrangement, the cleat **9***a* nearest the toe end of each shoe is a non-directional cleat with long legs **14** of equal lengths. The four other cleats **9** on the forepart **3***a* of the shoe are directional cleats, and have their maximum grip directions aligned forwardly and outwardly relative to the centreline, in the directions of arrows A. The four asymmetric cleats on the forepart of the shoe are preferably oriented at an angle of about 52 degrees relative to the centreline of the shoe, but may be oriented at an angle of between 70 and 35 degrees to the centreline.

[0045] The cleats on the left shoe heel are aligned rearwardly and outwardly, the cleat L**1** nearest the medial edge

having its principal direction oriented rearwardly and laterally outwardly at an angle θR**1** of about 25 degrees to the centreline of the shoe. The cleat L**2** has its principal direction oriented rearwardly and laterally outwardly at an angle θL**2** of about 55 degrees to the centreline of the shoe. The cleats R**1** and R**2** on the right shoe heel are aligned in lateral opposition with cleat R**1** directed inwardly toward the medial side at an angle θR**1** of about 90 degrees to the centreline of the shoe, and the cleat R**2** having its principal direction oriented rearwardly and laterally outwardly at an angle θR**2** of about 55 degrees to the centreline of the shoe. This arrangement was optimised for a right-handed golfer, so a left-hander would adopt a mirror-image arrangement.

[**0046**] If a golf course involves repeated climbing and descending of slopes, the arrangement of **FIG. 8** is effective to maximise grip. In this arrangement, the cleat **9***a* nearest the toe end of each shoe is a non-directional cleat, and the other four cleats **9** on the forepart **3***a* of the shoe are directional cleats, and have their maximum grip directions aligned towards the rear. This provides traction for climbing, as the weight is thrown forward over the forepart of the shoe. The cleats on the shoe heels are aligned generally forwardly to provide braking traction during descents, when the weight is thrown back over the heel parts.

[**0047**] **FIG. 9** shows a configuration effective in general use, with the directional cleats of each shoe oriented to face away from the centre of the sole of the shoe.

[**0048**] During the final part of a golfer's swing, the heel of the golfer's right foot (for a right-hander) is lifted, and the toe is rolled toward the left as the follow-through is completed. The shoe and the sole structure of the present invention not only maintain lateral traction during the downswing, but also facilitate the rolling of the toe by providing a rolling edge **17** at the inside edge of the front region of the forepart of the sole (the left edge of the right foot, and/or the right edge of the left foot). The side edge of the sole which is closer to the golfer's other foot is rounded, forming a substantially smooth transition from the horizontal undersurface of the sole to the generally vertical side edge surface. Both shoes may be formed with a rounded rolling edge **17** at the front region of the forepart of the sole, so that both left- and right-handed players may use identical pairs of shoes. Alternatively, shoes may be produced in pairs specifically for left- or right-handed golfers. For a right-hander, the right shoe is formed at its left edge with a rolling edge, and for a left-hander, the left shoe is formed at its right edge with a rolling edge.

[**0049**] The rolling edge **17** is formed at the front region **5** of the forepart of the shoe, but may extend back as far as the transverse groove, or even further to extend along the edge of the rear region **6** of the forepart **3***a* of the sole. The rolling edge may be formed with gripping ridges **17***a* which follow the shape of the edge of the sole and serve to resist slipping when the golfer's heel is raised.

[**0050**] In contrast to the rounded contour of the rolling edge **17**, stability of the golfer's stance is improved by downwardly and outwardly extending embossments or protrusions **18** positioned along the outside edge of the sole. The embossments **18** are preferably provided at least at the widest part of the sole, and may be formed on the edge of the front and/or rear regions of the forepart **3***a* of the sole. The outside edge of the heel part **3***b* of the sole may also be formed with embossments. These laterally outwardly extending embossments resist outward rolling of the shoe, i.e. lifting of the inside edge of the shoe, during the swing. The left foot (for a right-hander) is thus kept fully in contact with the ground particularly during the swing through the ball and the follow-through. To provide maximum stability to the stance, the embossments **18** may be provided along the outside edge of both the forepart **3***a* and the heel part **3***b* of the sole, and optionally also at the inside edge of the heel part. Since the inward rolling of the shoe takes place when the heel is lifted at the end of the swing, embossments on the inside edge of the heel do not impede this rolling action. Embossments may also be provided on the inside edge of the rear region **6** of the forepart of the sole, since this region is also lifted clear of the ground during the inward roll of the foot at the end of the swing. By providing embossments at both the outside edge and the rear part of the inside edge of the sole, the effective width of the footprint is increased, and resistance to lateral rolling of the shoe in either outward or inward directions is increased. When the heel and the rear region of the forepart of the shoe are lifted, the front region of the forepart can easily roll inwards to follow the golfer's swing with the rolling edge **17** contacting the ground, while the golfer's other foot remains flat on the ground and the embossments **18** resist rolling of that foot in the outward direction. The illustrated embodiment is provided with embossments **18** on the outside edge of the front region of the forepart **3***a*, the outside and inside edges of the rear region **6** of the forepart **3***a*, and the outside and inside edges of the heel part **3***b*, so that when the shoe is flat to the ground rolling in either direction is resisted.

[**0051**] As the golfer lifts his foot at the end of the swing, there is a tendency for the ankle and heel of the foot to twist relative to the toes, leading to instability. The sole of the present invention seeks to counter this twisting of the foot by providing a link between the forepart and the heel part of the sole which resists relative twisting of the two parts about the longitudinal axis of the shoe. The link in the illustrated embodiment is in the form of a beam **4** formed by two generally vertically extending flanges **4***a* and a central horizontal web **4***b* joining the two flanges **4***a*. The deep flanges **4***a* resist flexing of the beam **4** about transverse axes, maintaining the heel part **3***b* and the rear region **6** of the forepart **3***a* in substantially coplanar relationship and ensuring that the main flexing of the sole is between the front and rear regions **5** and **6** of the forepart **3***a*. The combination of the flanges **4***a* and the web **4***b* resists torsion of the beam, maintaining angular alignment between the front and rear regions **5** and **6** of the forepart **3***a* about the longitudinal axis of the shoe.

[**0052**] In a particularly advantageous embodiment, a resilient insole plate is provided to overlie the heel part **3***b* of the shoe and extend above the flanges **4***a* and web **4***b* to overlie at least partially the rear part **6** of the forepart **3***a* of the sole. The insole plate is preferably formed of a resilient plastics material such as polyethylene or polypropylene, from 1 to 5 mm, and preferably from 1 to 3 mm, in thickness. The insole plate has upturned rear and side edges to receive and locate the wearer's heel, and is fixed to the heel part **3***a* of the sole directly or indirectly by gluing, welding or other suitable attachment means. The front part of the insole plate is fixed in relation to the rear part **6** of the forepart of the sole by gluing, welding, or other attachment means so that relative twisting of the forepart **3***a* and the heel part **3***b* of the sole

causes deformation of the insole plate and is resisted by the resilience of the insole plate. When the twisting force is removed, the sole springs back to its original form, releasing energy to the golfer's foot to enhance the strength of the swing. The insole plate may be attached to the web **4***b*, or alternatively the insole plate may form the web **4***b*.

[**0053**] The beam **4** of the illustrated embodiment is attached to forepart **3***a* and heel part **3***b* by moulding in the ends of the beam while the forepart and heel part are being formed. The beam **4** is placed in a mould cavity, and the forepart and heel part are compression or injection moulded around the respective ends of the beam. The beam may alternatively be secured to the forepart and heel part by gluing or welding, or by other means.

[**0054**] To further improve grip in general use, the forepart **3***a* of the sole and the heel part **3***b* may be formed with ratchet teeth **20**, each having a generally vertical grip face **20***a* and a sloping face **20***b*. The ratchet teeth on the forepart **3***a* of the sole have their grip faces facing towards the heel, while the ratchet teeth on the heel have their grip faces facing toward the toe.

What is claimed is:

1. A pair of golf shoes for a right-handed golfer, each shoe having a heel part and a forepart, and having attached to its heel part at least two cleats, a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, each cleat comprising a plurality of radial gripping legs of different lengths adapted to engage a ground surface and provide different amounts of resistance to lateral movement relative to the ground in different directions relative to a centreline of the shoe, and wherein the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly.

2. A pair of golf shoes according to claim 1, wherein the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 10 to 40 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at from 75 to 105 degrees to the rearward centreline direction of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe.

3. A pair of golf shoes according to claim 1, wherein the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 20 to 30 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 50 to 60 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at from 85 to 95 degrees to the rearward centreline of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 60 degrees to the centreline of the shoe.

4. A pair of golf shoes according to claim 1, wherein the first cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at about 25 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe, the first cleat of the right heel has its principal direction oriented inwardly toward the medial side at about 90 degrees to the centreline of the shoe, and the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe.

5. A pair of golf shoes for a left-handed golfer, each shoe having a heel part and a forepart, and having attached to its heel part at least two cleats, a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, each cleat comprising a plurality of radial gripping legs of different lengths adapted to engage a ground surface and provide different amounts of resistance to lateral movement relative to the ground in different directions relative to a centreline of the shoe, and wherein the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly.

6. A pair of golf shoes according to claim 5, wherein the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 10 to 40 degrees to the centreline of the shoe, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side at from 75 to 105 degrees to the rearward centreline direction of the shoe, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe.

7. A pair of golf shoes according to claim 5, wherein the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 20 to 30 degrees to the centreline of the shoe, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at from 50 to 60 degrees to the centreline of the shoe, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side at from 85 to 95 degrees to the rearward centreline of the shoe, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 60 degrees to the centreline of the shoe.

8. A pair of golf shoes according to claim 5, wherein the first cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at about 25 degrees to the centreline of the shoe, the second cleat of the right heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe, the first cleat of the left heel has its principal direction oriented inwardly toward the medial side at about 90 degrees to the centreline of the shoe, and the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at about 55 degrees to the centreline of the shoe.

9. A pair of shoes according to claim 1, wherein the sole of the right shoe has a roll edge region at the inside edge of the toe.

10. A pair of shoes according to claim 9, wherein the sole of each shoe has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front region of the forepart.

11. A pair of shoes according to claim 9, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front and rear regions of the forepart and extends along the inside edge.

12. A pair of shoes according to claim 1, wherein the soles of both shoes each have a roll edge region at the inside edge of the toe.

13. A pair of shoes according to claim 5, wherein the sole of the left shoe has a roll edge region at the inside edge of the toe.

14. A pair of shoes according to claim 13, wherein the sole of each shoe has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front region of the forepart.

15. A pair of shoes according to claim 13, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front and rear regions of the forepart and extends along the inside edge.

16. A pair of shoes according to claim 13, wherein the soles of both shoes each have a roll edge region at the inside edge of the toe.

17. A pair of shoes according to claim 1, further comprising embossments formed on the outside edges of the soles to extend downwardly and outwardly of the soles.

18. pair of shoes according to claim 17, wherein the soles each comprise a forepart and a heel part, and embossments are formed on the outside edges of the foreparts.

19. A pair of shoes according to claim 18, wherein embossments are additionally provided on the outside edges of heel parts.

20. A pair of shoes according to claim 19, wherein embossments are additionally provided on the inside edges of heel parts.

21. A pair of shoes according to claim 17, wherein the sole comprises a forepart and a heel part, and said forepart is divided by transverse groove into front and rear regions, and wherein embossments are provided on the outside edges of said front and/or rear regions of said foreparts and on the inside edges of said rear regions of said foreparts.

22. A pair of shoes according to claim 5, further comprising embossments formed on the outside edges of the soles to extend downwardly and outwardly of the soles.

23. A pair of shoes according to claim 22, wherein the soles each comprise a forepart and a heel part, and embossments are formed on the outside edges of the foreparts.

24. A pair of shoes according to claim 23, wherein embossments are additionally provided on the outside edges of heel parts.

25. A pair of shoes according to claim 24, wherein embossments are additionally provided on the inside edges of heel parts.

26. A pair of shoes according to claim 5, wherein the sole comprises a forepart and a heel part, and said forepart is divided by transverse groove into front and rear regions, and wherein embossments are provided on the outside edges of said front and/or rear regions of said foreparts and on the inside edges of said rear regions of said foreparts.

27. A pair of shoes according to claim 1, wherein at least one said cleat comprises a centre stud with an indicator to indicate the direction of maximum resistance to lateral movement relative to the ground.

28. A pair of shoes according to claim 27, wherein said one cleat is releasably attachable to a shoe sole at an attachment position in one of a plurality of angular positions spaced about an axis substantially perpendicular to the sole at the attachment position.

29. A pair of shoes according to claim 5, wherein at least one said cleat comprises a centre stud with an indicator to indicate the direction of maximum resistance to lateral movement relative to the ground.

30. A pair of shoes according to claim 29, wherein said one cleat is releasably attachable to a shoe sole at an attachment position in one of a plurality of angular positions spaced about an axis substantially perpendicular to the sole at the attachment position.

31. A pair of shoes according to claim 1, wherein the sole of each shoe comprises a forepart and a heel part joined by a torsion resistant beam.

32. A pair of shoes according to claim 31, wherein the beam comprises two flanges and a web.

33. A pair of shoes according to claim 31, wherein the beam is attached to the forepart and to the heel part by moulding in.

34. A pair of shoes according to claim 1, wherein the sole of each shoe comprises a forepart and a heel part joined by a torsion resistant resilient insole.

35. A pair of shoes according to claim 5, wherein the sole of each shoe comprises a forepart and a heel part joined by a torsion resistant beam.

36. A pair of shoes according to claim 35, wherein the beam comprises two flanges and a web.

37. A pair of shoes according to claim 35, wherein the beam is attached to the forepart and to the heel part by moulding in.

38. A pair of shoes according to claim 5, wherein the sole of each shoe comprises a forepart and a heel part joined by a torsion resistant resilient insole.

39. A cleated sole for a shoe, comprising a heel part and a forepart, and having attached to its heel part at least two cleats, a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, each cleat comprising a plurality of radial gripping legs of different lengths adapted to engage a ground surface and provide different amounts of resistance to lateral movement relative to the ground in different directions relative to a centreline of the shoe, and wherein the first cleat of the heel has its principal direction oriented rearwardly and laterally outwardly, and the second cleat of the heel has its principal direction oriented rearwardly and laterally outwardly.

40. A cleated sole according to claim 39, wherein the first cleat has its principal direction oriented rearwardly and laterally outwardly at from 10 to 40 degrees to the centreline of the shoe, the second cleat of the left heel has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe.

41. A cleated sole according to claim 39, wherein the sole has a roll edge region at the medial edge of the toe.

42. A cleated sole according to claim 41, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front region of the forepart.

43. A cleated sole according to claim 41, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front and rear regions of the forepart and extends along the inside edge.

44. A cleated sole according to claim 39, further comprising embossments formed on the lateral outside edge of the sole to extend downwardly and outwardly of the sole.

45. A cleated sole according to claim 44, wherein the sole comprises a forepart and a heel part, and embossments are formed on the outside edge of the forepart.

46. A cleated sole according to claim 45, wherein embossments are additionally provided on the outside edge of heel part.

47. A cleated sole according to claim 46, wherein embossments are additionally provided on the inside edge of heel part.

48. A cleated sole according to claim 44, wherein the sole comprises a forepart and a heel part, and said forepart is divided by transverse groove into front and rear regions, and wherein embossments are provided on the lateral outside edge of said front and/or rear regions of said forepart and on the medial inside edge of said rear region of said forepart.

49. A cleated sole for a shoe, comprising a heel part and a forepart, and having attached to its heel part at least two cleats, a first cleat adjacent the medial side of the shoe and a second cleat adjacent the lateral side of the shoe, each cleat comprising a plurality of radial gripping legs of different lengths adapted to engage a ground surface and provide different amounts of resistance to lateral movement relative to the ground in different directions relative to a centreline of the shoe, wherein the first cleat of the heel has its principal direction oriented inwardly toward the medial side, and the second cleat of the heel has its principal direction oriented rearwardly and laterally outwardly.

50. A cleated sole according to claim 49, wherein the first cleat has its principal direction oriented inwardly toward the medial side at from 75 to 105 degrees to the rearward centreline direction of the shoe, and the second cleat has its principal direction oriented rearwardly and laterally outwardly at from 40 to 70 degrees to the centreline of the shoe.

51. A cleated sole according to claim 49, wherein the sole has a roll edge region at the medial edge of the toe.

52. A cleated sole according to claim 51, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front region of the forepart.

53. A cleated sole according to claim 51, wherein the sole has a forepart divided by transverse groove into front and rear regions, and said roll edge region is formed on the front and rear regions of the forepart and extends along the medial edge.

54. A cleated sole according to claim 49, further comprising embossments formed on the lateral outside edge of the sole to extend downwardly and outwardly of the sole.

55. A cleated sole according to claim 54, wherein the sole comprises a forepart and a heel part, and embossments are formed on the lateral outside edge of the forepart.

56. A cleated sole according to claim 55, wherein embossments are additionally provided on the lateral outside edge of heel part.

57. A cleated sole according to claim 56, wherein embossments are additionally provided on the medial inside edge of heel part.

58. A cleated sole according to claim 54, wherein the sole comprises a forepart and a heel part, and said forepart is divided by transverse groove into front and rear regions, and wherein embossments are provided on the lateral outside edge of said front and/or rear regions of said forepart and on the medial inside edge of said rear region of said forepart.

59. A cleat for a cleated shoe having a socket for attaching said cleat releasably to the socket in one of a plurality of angular positions spaced about an axis substantially perpendicular to the sole at the socket, the cleat comprising:

a stem for engaging said socket of said sole;

a ground-engaging formation adapted to engage a ground surface and provide different amounts of resistance to lateral movement relative to the ground in different radial directions relative to the said axis; and

a centre stud with a direction indicator to indicate the direction of maximum resistance to lateral movement relative to the ground.

60. A cleat according to claim 59, wherein said direction indicator comprises an arrow.

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