ABSTRACT OF THE DISCLOSURE

A cleat for an athletic shoe having a sole, the cleat being generally pyramidal in configuration to present a base surface and three planar, triangular traction surfaces, said traction surfaces facing generally forwardly, rearwardly and outwardly of the shoe respectively, each traction surface being inclined inwardly from the base surface which is adjacent the sole of the shoe, a pair of the traction surfaces converging subjacent the sole to form a runner portion which extends generally transversely of the sole and is inclined downwardly toward the instep side of the shoe and terminates in a pointed slipper portion to facilitate inward shifting movement of the cleat.

This invention relates to cleat structure for athletic shoes and has as its primary object the provision of a cleat having a novel configuration which permits ready yielding of the shoe when an athlete's leg is hit from the side, and additionally, provides a high degree of traction for running or turning.

It is well known that a high percentage of the many knee and ankle injuries suffered by athletes can be traced directly to the cleats on their shoes. This is a particular problem in football where a player will frequently be hit on the legs from the side and, if the cleats of his shoes have a secure grip on the turf of the field, the knee or ankle may likely give way before the shoe, thereby often causing serious injury.

Accordingly, it is an important object of this invention to provide a cleat for athletic shoes wherein many of the injuries attributable to cleat retention in the ground will be eliminated through the utilization of a directional runner portion formed in the cleat. The runner portion facilitates sliding of the shoe when the athlete is hit from the side, even after the athlete has obtained a secure grip in the turf by the cleats of the shoe. Thus, the force or blow will be distributed throughout the leg as the latter readily moves, rather than being primarily limited to the weakened knee and ankle portions of the leg which are most vulnerable to injury.

A related object of the instant invention is to provide a cleat having a directional runner portion as described above, wherein other portions of the cleat are designed to expose a large area to give high traction characteristics so that an athlete will be able to stop, start, and cut better than with shoes having conventional cleats, such as the common frusto-conical configuration.

Other objects include details of construction which will become apparent from the following specification and accompanying drawings, wherein:

FIGURE 1 is a bottom plan view of a plurality of cleats made pursuant to the teachings of my invention, showing the same mounted on an athletic shoe;

FIG. 2 is a fragmentary, enlarged, exploded, perspective view of the cleat and mounting structure therefor;

FIG. 3 is an enlarged, cross-sectional view taken along line 3-3 of FIG. 1;

FIG. 4 is a bottom plan view of the cleat; and

FIG. 5 is a top plan view of the cleat.

The cleat of the present invention, broadly designated by the reference numeral 10, comprises a generally pyramidal body and is attached to the bottom 12 of the sole 14 of an athletic shoe. Cleat 10 includes a planar, triangular base surface 16 facing bottom 12, there being a projection 18 extending upwardly from each corner of base 16.

First, second and third planar, triangular traction surfaces 20, 22 and 24, facing generally forwardly, rearwardly and outwardly, respectively, of the shoe, merge with corresponding sides of base surface 16 adjacent sole 14, and converge to terminate at a vertex zone 26 subjacent sole 14. First surface 20 and second surface 22 slope forwardly and rearwardly respectively, as base 16 is approached, and third surface 24 slopes outwardly as base 16 is approached.

First and second traction surfaces 20 and 22 converge subjacent base 16 into a ground-engaging runner portion in the form of an elongated edge 28 extending generally transversely of sole 14. First and second traction surfaces 20 and 22 also converge toward the instep side 30 of the shoe to form a slipper portion at the zone of convergence, the slipper portion in the illustrated embodiment comprising a point 32.

Runner edge 28 slopes downwardly and inwardly toward instep side 30 and extends from its merging point with traction surfaces 20, 22 and 24 at vertex 26 to its convergence with first and second traction surfaces 20 and 22 remote from third traction surface 24 where it terminates to present slipper portion or point 32.

First and second traction surfaces 20, 22 converge subjacent sole 14 in a pair of corresponding outer edges 34 which extend outwardly as base 16 is approached. The angle of inclination of runner edge 28 with respect to base 16 is relatively less than the corresponding angles of inclination of outer edges 34.

A bore 36 is formed in cleat 10 and extends from base 16 to vertex zone 26. Bore 36 is substantially perpendicular to base 16 and presents a lower, annular lip 38 at vertex zone 26.

A threaded stud 40 having a head 42 extends through sole 14 with head 42 being received within a recess 44 formed in the top 46 of sole 14. A locking ring 48 is jour-

A plurality of clip elements 50 are provided on locking ring 48 and are embossed in sole 14 to preclude rotational movement of stud 40.

To mount cleat 10 on sole 14, bore 36 is registered with stud 40 having base 16 facing bottom 12 and traction surfaces 20, 22 and 24 facing forwardly, rearwardly and outwardly, respectively, as described above. An internally threaded fastener or sleeve 52 extends through bore 36 at vertex 26 and is threadably secured to stud 40. Sleeve 52 terminates in a ground-engaging head remote from sole 14 at the vertex zone 26, and the inner surface of head 54 engages lip 38 to retain cleat 10 on sole 14. Head 54 is provided with opposed flat edges 56 which serve as gripping areas when a wrench is used for tightening sleeve 52. When cleat 10 is attached to sole 14, projections 18 will be embedded in bottom 12 of sole 14 to prevent rotational movement of cleat 10.

As shown in FIG. 1, a plurality of cleats 10 are secured to sole 14, each cleat 10 having its runner edge 28 extending downwardly and inwardly toward instep side 30 of the shoe. The exact length of edge 28 will vary with respect to the corresponding cleat's position on the shoe so that the cleat will not extend laterally beyond the sole. An athlete wearing shoes of the type shown in FIG. 1 will have substantially traction for running, turning, and cutting movements since force imparted to the shoes during these movements will be delivered against corresponding traction surfaces 26, 22 and 24 which present relatively large frictional retention areas for contact with the ground.

Should the athlete be hit on the leg from the side, each
Runner edge 28 will easily shift inwardly along the ground without substantial adhesion thereto, whereby the force imparted to the leg will be distributed throughout the area. Since the leg readily moves inwardly with runner edges 28, the knee and ankle portions of the leg will not likely be injured. This shifting or sliding action will occur even when the athlete has obtained a firm grip in the turf with his cleats.

The ready yielding of runner edge 28 is attributable to the cumulative effect of the convergence of first and second traction surfaces 20 and 22 into slipper portion or point 32, and the inward and downward extension of runner edge 28 which terminates in point 32. The relatively low angle of inclination of runner edge 28 aids ready slipping of edge 28 along the ground as cleat 10 slides therethrough, while the high angle of inclination of outer edges 34 disposes traction surfaces 20, 22 and 24 in substantially facing relationship forwardly, rearwardly and outwardly of the shoe to provide optimum frictional gripping of the ground when force is imparted in the corresponding directions.

Another advantage of the cleat of the present invention is that the pressure on sole 14 is distributed over a larger surface area than with conventional cleats so that pushing of the mounting plates into the sole is minimized, and additionally, the bearing surface on the bottom of cleat 10 is greater. It will also be recognized that cleat 10 will be protected from rapid wear due to the provision of head 54 on sleeve 52. When head 54 is worn down over a prolonged period of use, it is only necessary to replace sleeve 52.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a shoe having a sole, a cleat attached to the sole of said shoe, said cleat comprising:
   a body, said body having:
   a base surface facing the bottom of said sole,
   a first traction surface generally facing forwardly of the shoe,
   a second traction surface generally facing rearwardly of the shoe,
   a third traction surface generally facing outwardly away from the instep side of the shoe,
   a ground-engaging runner portion extending generally transversely of the sole and formed by the convergence of a pair of said traction surfaces subjacent said base surface,
   said traction surfaces merging with said base surface adjacent said sole,
   said runner portion extending downwardly toward the instep side of the shoe and terminating in a slipper portion capable of rendering the runner portion easily shiftable inwardly along the ground without substantial adhesion to the ground.
2. The invention of claim 1, said first and second traction surfaces converging subjacent the base forming an elongated edge extending generally transversely of the sole and forming said runner portion.
3. The invention of claim 1, said first and second traction surfaces converging toward the instep side of the shoe, said slipper portion being disposed at the zone of convergence of said first and second traction surfaces.
4. The invention of claim 2, said first and second traction surfaces converging toward the instep side of the shoe, said slipper portion being disposed at the zone of convergence of said first and second traction surfaces, said edge sloping downwardly and inwardly toward the instep side of the shoe, converging with the first and second traction surfaces remote from said third traction surface, presenting a point forming the slipper portion.
5. The invention of claim 4, said traction surfaces all being triangular.
6. The invention of claim 4, said third traction surface sloping outwardly away from the instep side of the shoe as the base surface is approached.
7. The invention of claim 4, said first and second surfaces sloping forwardly and rearwardly respectively as the base surface is approached.
8. The invention of claim 4, there being a fastener securing the body to the sole.

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