May 26, 1970 A. C. LARCHER 3,513,571

FOOTBALL SHOE

Filed Jan. 31, 1969

Fig. 1.

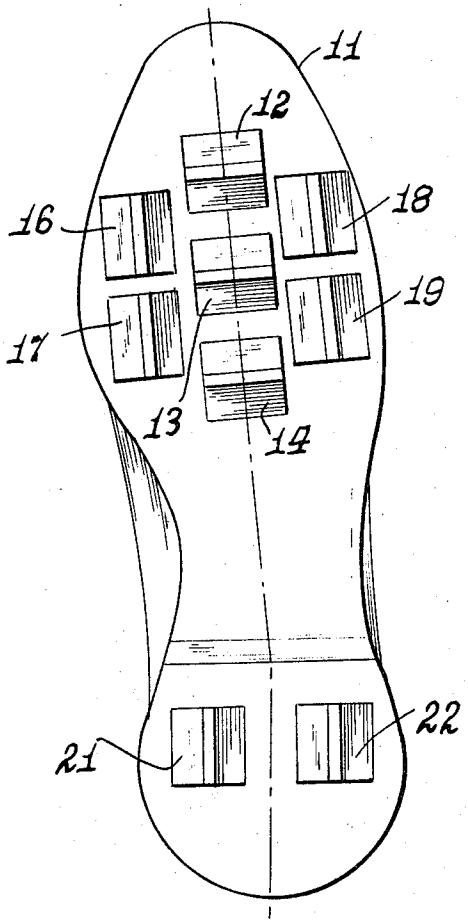


Fig. 2.

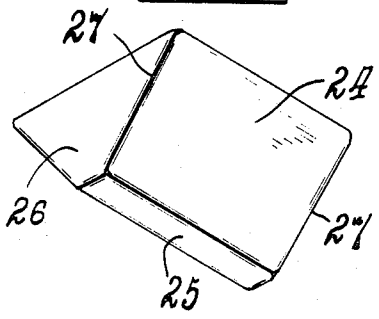
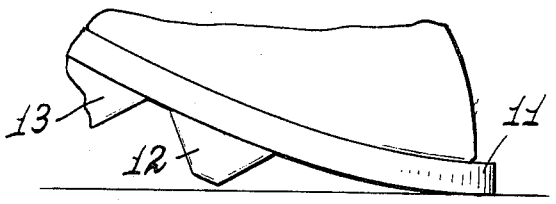


Fig. 3.



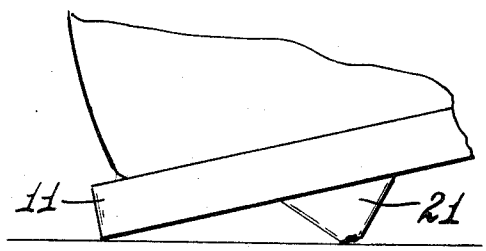


Fig. 4.

Fig. 5.

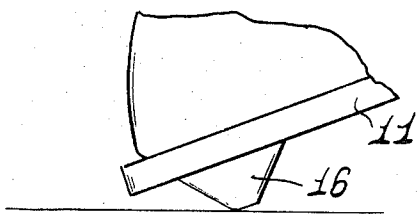
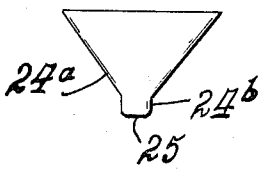


Fig. 6.



Inventor.
ANGELO C. LARCHER
Samuel W. Kipnis
Atty.

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FOOTBALL SHOE

Angelo C. Larcher, 8036 S. Western Ave.,
Chicago, Ill. 60620

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ABSTRACT OF THE DISCLOSURE

A shoe for athletic wear, such as football shoes, having a unique arrangement of newly formed cleats on its sole designed to afford needed traction without impeding the ability of the shoe to slide over the turf when the wearer is subjected to impact.

The invention relates to improvements in cleated shoes and more particularly to the unique shape and arrangement of cleats on the sole of a football shoe. Shoes having such cleats arranged thereon in the manner herein disclosed make it possible for the wearer to obtain good traction without sacrifice of the ability to slide over the turf when subjected to impact, or to rotate the foot.

When a wearer is struck from any direction it frequently occurs, when wearing shoes of any of the many known types having cleats thereon, that the cleats remain engaged or embedded in the turf to such extent that the foot cannot slide and, as a consequence, serious knee or leg injury results. Such injury usually involves the pulling of muscles, the tearing of tendons and damage to the anterior and posterior cruciate ligaments as well as the internal medial meniscus. Furthermore, known arrangements of cleats involve the placing of cleats close to the heel and toe extremities with the result that free rotation of the foot is prevented.

In the present disclosure the cleats are substantially triangular in shape so as to present a narrow bottom surface which is principally provided for traction and cutting ability when running. The cleats are arranged in groups with one group of three extending along the longitudinal medial axis of the sole with the intermediate cleat located substantially at the ball of the sole and the forward cleat spaced inwardly from the toe. Arranged on each side of the center row of cleats is a pair of similar cleats, whereas the heel mounts a pair of cleats side by side spaced inwardly from the back end of the heel. This arrangement of cleats and their shape provides improved traction without slippage on or locking in the turf and will prevent many injuries to the anterior and posterior cruciate ligaments, internal medial ligaments and internal medial meniscus and afford less stress upon the quadriceps and the hamstring muscles of the femur and tibia, thus preventing pulled muscles and tearing of their tendons.

It is therefore an object of the invention to provide a cleated shoe of the character referred to.

Another object is to provide cleats of the character referred to.

Another object is to provide a shoe with cleats arranged to minimize injury to the wearer resulting from impact.

Another object is to provide an improved form of cleat and cleat arrangement to prevent locking of the cleats in the turf and to facilitate a shift or turning in direction of the foot in motion.

Another object is to provide a cleated shoe of the character referred to which is not expensive or difficult to manufacture and which is highly efficient in use.

Other objects and advantages of the invention will become apparent with reference to the following description and accompanying drawings:

In the drawings:

FIG. 1 is a bottom plan view of a football shoe embodying the invention.

FIG. 2 is a perspective view of one of the cleats.

FIG. 3 is a fragmentary view of the toe portion of the shoe in a position assumed when turning on the toe.

FIG. 4 is a fragmentary view of the heel portion of the shoe in a position assumed while turning on the heel.

FIG. 5 is a fragmentary view of one side of the shoe when the foot is tilted sidewise.

FIG. 6 is a view of a modified form of cleat.

Referring to the exemplary illustrations of the invention shown in the accompanying drawings, the bottom surface of the shoe sole **11** is provided with a plurality of like cleats arranged in a novel manner so as to accomplish the purposes of this invention. As shown, a row of three cleats **12, 13** and **14** is provided on the longitudinal medial axis of the sole. The intermediate cleat **13** is located substantially at the ball of the foot whereas the lead cleat **12** is spaced inwardly from the toe of the sole. These cleats, which may be square or substantially rectangular shaped at their base, are arranged with their longitudinal axis transversely of the sole. This arrangement facilitates natural flexing of the foot and reduces stresses on the metatarsal arch.

Spaced on each side of the central row of cleats is a row of two cleats **16–17** and **18–19**, which are arranged with their axis substantially parallel to each other and to the longitudinal medial axis of the sole. These cleats afford lateral support for the shoe.

The heel portion of the sole mounts a pair of cleats **21, 22**, which also are arranged parallel to each other and parallel to the longitudinal axis of the sole and are spaced apart one on each side of said axis. These two cleats are spaced inwardly from the back edge of the heel. All of the cleats may be adhesively secured to the sole as shown but they may be nailed, doweled, or otherwise secured to or made integral with the sole.

As best shown in FIG. 2, each cleat is, as previously stated, substantially rectangular, or they may be square, at their base and their side faces **24** are inclined inwardly downwardly and terminate in a narrow flat bottom face **25**. The end faces **26** ae normal to the base face. Preferably all corners other than at the base are rounded, as indicated at **27**, so as to avoid the presence of sharp corners.

Although the dimensions of the cleats, which preferably are fabricated from suitable rigid plastic material, such as, for example, "nylon," may vary, it is preferred that they have a length of about one inch and a width substantially the same or slightly less. The distance between the base face and the bottom face **25** is about one-half inch to three-eighths inch whereas the bottom face **25** is about one-fourth inch wide.

In use, the cleats **12, 13** and **14** afford traction while running, the cleats never becoming embedded in turf more than about one-fourth inch. On a muddy field traction will increase but there will be no adherence with the turf. Sidewise slipping while running is prevented by the side and heel cleats **16** to **19** and **21, 22**.

Rotation of the foot while running is readily accomplished without impediment by any of the cleats or requiring the foot to be lifted from the turf, by reason of the spacing of the cleats **12** and **21, 22** inwardly of the respective ends of the sole. This is illustrated in FIGS. 3 and 4 where it is seen that the respective cleats are not locked in the turf when such rotation is to be effected.

In instances when a wearer is struck a blow or "tackled" while running or is "blocked" and the shoe is thereupon tipped to one side or the other, the side cleats **16–17** or **18–19**, as shown in FIG. 5, are not locked in the turf but instead are disposed at such an angle that, by reason of

their inclined side walls **24**, they will slip freely over the turf and permit the foot to adjust to any required position and thus avoid injury to the ligaments or muscles and possible knee injury or bone fracture.

In the FIG. 6 illustration the cleat is formed with tapered side walls **24***a* that terminate in straight side walls **24***b* before merging with the bottom face **25**. This type of cleat will have slightly better traction than the cleat described hereinabove.

Although I have described preferred embodiments of my invention, in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as details of the structure may be modified or changed without departing from the spirit of scope of the invention. Accordingly, I do not desire to be restricted to the exact construction described.

1. An athletic shoe having a sole with a toe portion and a heel portion, a row of substantially oblong rectangular cleats, triangular in section, arranged on the longitudinal axis of the toe portion with their bases secured to said toe portion and their axes disposed normal to said longitudinal axis, said cleats being spaced apart side by side and from the front end of the toe portion to leave said front end uncleated, two pairs of like cleats arranged one pair on each side of the said row of cleats with their axes substantially parallel to the longitudinal axis of said toe portion, the cleats of each pair being spaced apart end to end, and

two like cleats arranged on the heel portion spaced apart side by side and from the rear end of the heel portion to leave said rear end uncleated, said last named cleats having their axes substantially parallel to the longitudinal axis of the toe portion.

2. The athletic shoe recited in claim **1**, in which the row of cleats comprises three spaced apart cleats.

3. The athletic shoe recited in claim **2**, in which the intermediate cleat is arranged on the ball portion of the sole.

4. The athletic shoe recited in claim **1** in which at least some of said cleats have a rib on their apex surface.

5. The athletic shoe recited in claim **1**, in which the cleats are fabricated from plastic material.

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MERVIN STERN, Primary Examiner

G. H. KRIZMANICH, Assistant Examiner