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54 Shoes with heel counters.

57 An athletic shoe (10) having a semi-rigid outsole (12) and an external heel counter (20) integral with the outsole. The heel counter (20) extends around behind the heel region and along the medial and lateral sides of the shoe while another heel counter (22) and the shoe upper (14) nest in the pocket formed by the integral, external heel counter (20). The integral heel counter (20) reduces separation or softening in the region of the juncture between heel and sole caused by flexure during extended use of the shoe.

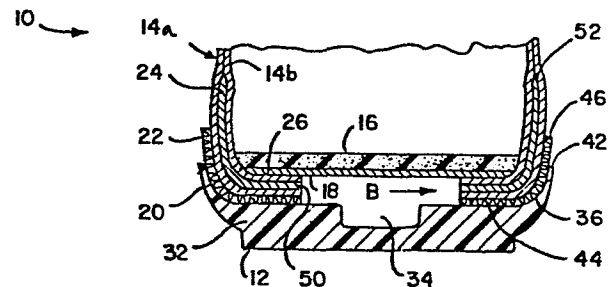


FIG. 5

SHOES WITH HEEL COUNTERS

The present invention relates to shoes having heel counters.

Both interior and exterior heel counters are known and used for a variety of reasons but chiefly

5. in athletic shoes for added foot support to inhibit tendency to overpronation. Such heel counters generally extend upwardly from the sole around the heel of the shoe to stiffen that portion and stabilize the foot. Although such heel counters function

10. generally satisfactorily, certain problems are experienced with shoes incorporating heel counters, particularly after extended use of such shoes. The repeated bending of the shoe and sole has a tendency to cause the shoe counter to fracture or separate

15. from the sole at the base. Further, such extensive use causes the base of the counter itself to soften and thereby reduce its effectiveness in providing support to the shoe. Such wear and breaking down of the counter and shoe reduces the stability and support

20. provided by the shoe to the wearer's foot.

Accordingly, the present invention corrects the problems noted above by the provision of an external heel counter formed integrally with the shoe outsole. The integral heel counter provides stability to the

25. shoe and foot of the wearer while cooperating with the remainder of the shoe sole and upper to prevent breakdown in the heel portion of the shoe. The integral, external heel counter also cooperates with

30. any other external or internal heel counters to prevent fracturing, separation or other breakdown

and failure of the counters or shoe in this location.

The invention may be carried into practice in various ways but one integral outsole and heel

5. counter support and a shoe incorporating the outsole will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a fragmentary, side elevational view of the shoe having the integral outsole and heel counter support embodying the present invention;

Figure 2 is a fragmentary, top plan view of the outsole of Figure 1;

Figure 3 is a sectional view of the outsole taken along plane III-III of Figure 2;

15. Figure 4 is a fragmentary, rear elevational view of the shoe of Figure 1;

Figure 5 is a sectional view of an assembled shoe taken along plane V-V of Figure 2; and

20. Figure 6 is a fragmentary, sectional view of an assembled shoe taken along plane VI-VI of Figure 2.

The athletic shoe 10 shown in Figure 1 is of the type having a semi-rigid outsole 12, such as those used for football. Better shown in Figures 5 and 6, the shoe 10 has an upper 14, an insole 16, a midsole 18 and the outsole 12. Integrally formed with the outsole 12 is an external semi-rigid heel counter support 20 that extends around behind the heel portion and along the sides of the shoe. The shoe 10 also includes an exterior fabric or leather heel counter 22 that extends above the heel counter support 20,

and an internal fibreboard or leather heel counter 24 that extends above both heel counter support 20 and heel counter 22 behind the heel of the shoe 10.

- More specifically, the upper 14 is of conventional
5. design having two layers of leather or fabric 14a and 14b which envelope the internal heel counter 24 in the heel region of the shoe 10, Figures 5 and 6. The upper 14 forms a lower peripheral lip 26 that extends beneath the entire perimeter of the midsole 18 and is
 10. glued in place to secure upper 14 to the remainder of shoe 10. Midsole 18 is a relatively stiff compressed fibreboard or leather sheet, also of conventional design, which underlies the entire foot of the wearer and provides a support surface for insole 16. Insole 16
 15. is a foam or resilient insole pad having a nylon or other synthetic fibre upper surface that cushions the foot of the wearer as well as conforming somewhat to the shape of the wearer's foot. Insole 16 is bonded to midsole 18 by an adhesive, while lip 26 of upper
 20. 14 is adhered to outsole 12 as is known in the art. Additionally, stiff midsole 18 is secured to outsole 12 by metal fasteners or the like located at both the toe and heel, thus pinning lip 26 between midsole 18 and outsole 12.
 25. As shown in Figures 2 and 3, outsole 12 comprises a generally flat, unitarily moulded polymeric element, preferably of graphite-reinforced nylon. Outsole 12 is a fairly thin layer or sheet of material forming a body 30 configured to that of the outsole profile.
 30. Extending about the perimeter at the rear of outsole 12

is an upstanding ridge 32 having a flat upper support surface which forms a hollow heel portion 34, as shown in Figures 5 and 6. Stiff midsole 18 is supported on the planar upper surface of ridge 32 to provide the inside of shoe 10 with a flat foot support surface. Raised ridge 32 and hollow heel portion 34 provide shoe 10 with a raised heel while maintaining a relatively lightweight construction. Further, since ridge 32 increases and reinforces the moulded polymeric material in this region, outsole 12 flexes far more easily in the forward, flat body region 30. Also moulded with body 30 and ridge 32 are part-cylindrical plugs 35, Figure 2, which protrude into the hollow heel portion 34. Plugs 35 form reinforced bases in which cleats or studs may be anchored or through which outsole-midsole fasteners may pass.

As shown in Figure 3, heel counter support 20 is integrally moulded with outsole 18 from the relatively stiff polymeric material to extend outward slightly from ridge 32, and then form a smoothly curved transition 36 into a generally upstanding peripheral flange 38. Heel counter support 20 extends around behind the heel region and forwardly along both the medial and lateral sides of outsole 12. Counter support 20 terminates in a pair of front edges 40 that are spaced to the rear of the arch area of the shoe. Upstanding flange 38 has a smoothly upwardly narrowing taper from curved transition 36 to a top edge 42, thus giving counter support 20 a generally bowl-

shaped, slightly upwardly diverging configuration that forms a pocket at the rear of outsole 12.

The exterior heel counter or reinforcing element 22 includes an underlying lip 44 that extends

5. beneath the foot of the wearer and the peripheral edge of the heel region of midsole 18. Lip 44 is adhered to both outsole ridge 32 and the undersurface of lip 26 on shoe upper 14, thus being pinned between outsole 12 and midsole 18. As shown in

10. Figures 5 and 6, heel counter 22 is a relatively thick section of leather or textile fabric which conforms to the curvature of underlying counter support 20 in order to contact and be supported by the entire inner surface of counter support 20. The heel

15. counter 22 extends around behind the heel region along both the medial and lateral sides of shoe upper 14 and extends forwardly just past front edges 40 of counter support 20. Heel counter 22 extends upwardly from lip 44 along the outside of shoe upper

20. 14 to a generally horizontal upper edge 46 spaced above counter support top edge 42.

Internal heel counter 24 is sheathed within shoe upper 14 between inner and outer layers 14a and 14b. Heel counter 24 is a relatively rigid element formed

25. from compressed fibreboard or hardened leather similar to the material of midsole 18. Internal counter 24 forms an upstanding flange from an underlying lip 50 that extends under the periphery of the heel region of midsole 18. Internal counter 24 has an upper

30. edge 52 having a maximum height in the counter portion

6.

that curves behind the heel area of shoe 10. The upper edge of counter 24 tapers forwardly and downwardly in a smooth arcuate taper to terminate at or slightly to the rear of front edges 40 on counter support 20.

When assembled, the heel region of shoe upper lip 26, exterior counter lip 44 and internal counter lip 50, along with midsole 18 nest down inside the bowl-shaped pocket formed by counter support 20 to lie beneath counter support top edge 42. Counter support 20 itself acts as an external heel counter to stabilize the shoe and foot of the wearer while running.

Further, heel counter support 20 strengthens the other external and internal heel counters to prevent the breakdown and separation of these counters from the shoe sole. As the shoe 10 is flexed, the curvature of the shoe sole causes a rearward force to be placed on upper 14 acting across the inner surface of outsole 12, depicted in Figure 6, as the direction of arrow "A". In shoes which do not include heel counters and therefore have more flexible heels, the flexing and stretching of the material between the upper and outsole absorbs this rearward force. In shoes having a heel counter the stiffness of the upper in this area does not permit as much flexing of material to absorb this force. Shoes which have relatively stiff outsoles, such as those to which cleats are anchored, compound the problem by permitting little or no flexing between the heel counter and

outsole. Although not initially a problem, continued wear and flexing of the shoe can cause the joint between the sole and heel counter to fracture or separate in order to permit the counter to slide

5. upon the inner surface of the outsole. The separation problem is exacerbated in shoes with hard outsoles which may only be bounded by adhesive to the remainder of the shoe rather than stitched together.

- In addition to the problems of fracturing and separation, the repeated rearward force may cause the counter to soften at its base due to the stretching and absorption of this rearward force. As the counter softens at the base, the counter is allowed to collapse downwardly slightly and thus
10. reduces the stability of the shoe.
- 15.

- With shoe upper 14 and heel counters 22 and 24 seated within bowl-shaped counter support 20, counter support 20 forms a relatively rigid vertical stop that prevents the rearward forces from stretching and sliding the shoe upper across outsole 12. Since counter support 20 cannot separate from outsole 12, counter support 20 prevents separation or fracture along the joint between outsole 12 and upper 14 as well as preventing the softening and breakdown of heel counter 24 at its base.
- 20.
- 25.

- A similar fracturing and breakdown problem is experienced due to the pronation of the shoe wearer. A person that overpronates first strikes the lateral side of the heel against the ground and then rolls onto the remainder of the sole. Similar to the rear-
- 30.

- ward force generated by a person's stride in the shoe, this rolling from side to side also causes flexing and lateral forces to be generated within the shoe sole. These lateral forces are directed from one side of
5. the shoe to the other as indicated by arrow "B" in Figure 5, rather than from the front to the rear of the shoe. This lateral force operates in a similar manner to cause fracture in the joint between the counter and sole as well as causing the breakdown of
 10. the heel counter along its base. The medial and lateral forwardly extending flanges of counter support 20 form relatively rigid vertical stops which abut the shoe upper to prevent the lateral separation and breakdown of the heel counter. In this manner,
 15. counter support 20 extends the life of the shoe in addition to stabilizing the shoe while in use.

It will be appreciated by those skilled in the art that various modifications or improvements may be made on the preferred embodiment described above.

CLAIMS

1. A shoe sole, comprising an outsole (12), characterised by an external heel counter (20) formed integrally with the outsole, the heel counter upstanding around the heel portion of the sole and extending along the medial and lateral sides thereof.

2. A shoe sole according to Claim 1 in which the outsole (12) and heel counter (20) are formed from an at least semi-rigid polymeric material.

3. A shoe sole according to Claim 1 or Claim 2 in which the outsole (12) and heel counter (20) have a smoothly curved, integral juncture, the counter having a thickness which tapers narrower from the juncture upward.

4. A shoe sole according to Claim 1 or Claim 2 or Claim 3 which includes a second heel counter (22) overlying the external heel counter, the second heel counter extending above the upper edge of the external heel counter (20).

5. A shoe sole according to Claim 4 which includes a midsole (18), the second counter (24) having an undersurface portion (50) disposed between the outsole and the midsole.

6. A shoe sole according to Claim 5 which includes an external reinforcing element (22) which extends upwardly above the upper edge of the external heel counter (20) and is disposed between the external heel counter (20) and the second heel counter (24).

7. A shoe sole according to any of Claims 4 to 6 in which the second heel counter (24) has a maximum height behind the heel region of the sole and tapers downwardly along the medial and lateral sides of said sole.

8. An athletic shoe comprising an outsole according to any of Claims 1 to 7, a midsole (18), an insole (16), and an upper (14), the heel counter (20) being external to the upper, insole and midsole around the heel portions thereof.

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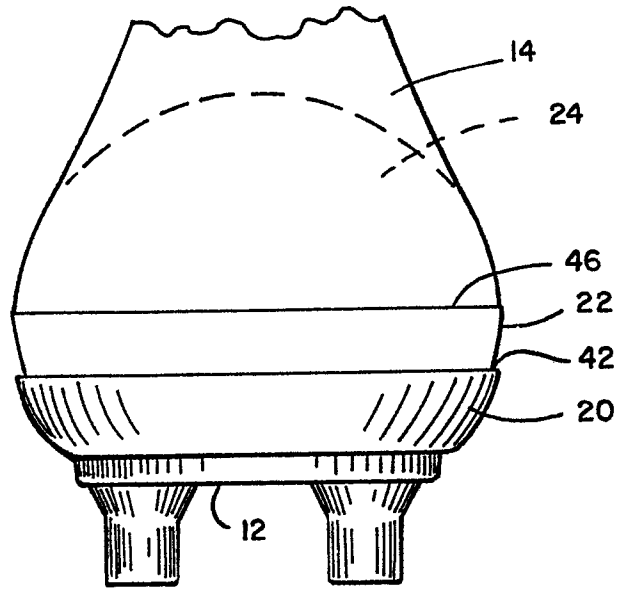


FIG. 4

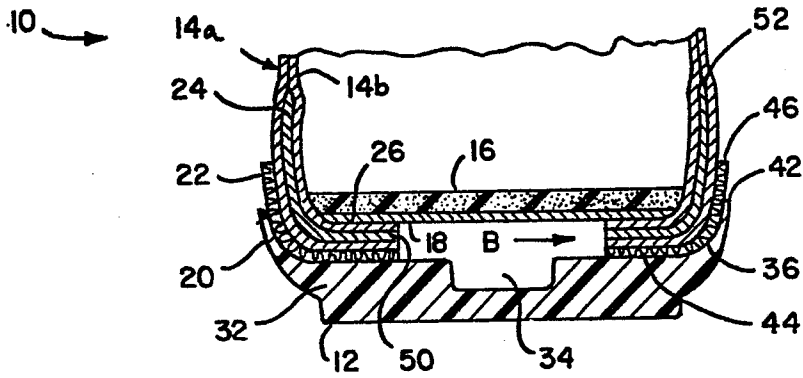


FIG. 5

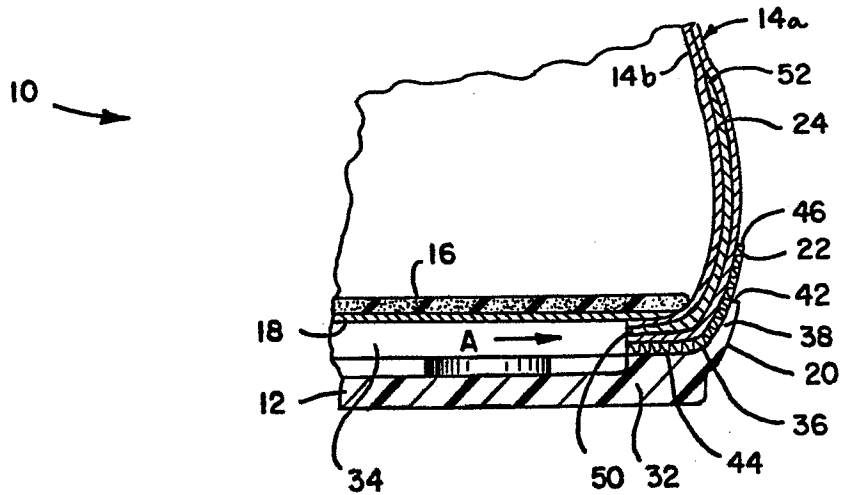


FIG. 6