The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WOLFGANG SCHOLZ, DANIEL EUGENE NORTON,
PATRIZIO CARLUCCI, BERTHOLD KRABBE, and
CHRISTOPH BERGER

Appeal 2006-1499
Application 09/561,584
Technology Center 3700

Decided: March 12, 2007

Before TERRY J. OWENS, MURRIEL E. CRAWFORD, and JENNIFER D. BAHR, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Wolfgang Scholz et al. (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-21. We have jurisdiction over this appeal under 35 U.S.C. § 6.

We AFFIRM-IN-PART.

THE INVENTION

Appellants' invention is an article of footwear, such as a sports shoe (Specification 1) having a sole comprising an elastic plate that effectively catapults the foot in a forward direction when the plate springs back (Specification 2). Claim 1 is illustrative of the claimed invention and reads as follows:

> 1. An article of footwear comprising:
>
> a sole comprising a plate including a forefoot part and a rearfoot part, the plate extending over substantially the entire sole, and wherein the forefoot part has a substantially smooth planar surface and is constructed of a material and configured to allow for an elastic bending and spring back of the plate and the rearfoot part is configured to support a heel of a foot, wherein the plate effectively catapults the foot in a forward direction when the plate springs back.

THE EVIDENCE

The Examiner relies upon the following as evidence of unpatentability:

Toyama	US 4,231,169	Nov. 04, 1980
Brown '700	US 4,510,700	Apr. 16, 1985
Bauer	DE 39 24 360 A1	Jan. 24, 1991
Brown '409	US 5,184,409	Feb. 09, 1993
Sessa	US 5,619,809	Apr. 15, 1997

THE REJECTIONS

Appellants seek review of the Examiner's rejections under 35 U.S.C. § 103(a) of claims 1, 8 , and 9 as being unpatentable over Bauer, claims 2-4, 10-14, 16, 20, and 21 as being unpatentable over Bauer in view of Brown '700, claims 2-7, 13, and 20 as being unpatentable over Bauer in view of Brown '409, claim 15 as being unpatentable over Bauer in view of Brown '700 and Toyama, and claims 17-19 as being unpatentable over Bauer in view of Brown '700 and Sessa.

The Examiner provides reasons in support of the rejections in the Answer (mailed July 14, 2005). Appellants present opposing arguments in the Brief (filed April 18, 2005) and Reply Brief (filed September 15, 2005).

FINDINGS OF FACT

1. Appellants' spring plate is typically made of a composite material. Examples of suitable composite materials are graphite, fiberglass, and carbon fibers embedded in a matrix of resin. These materials combine high stiffness and low energy loss with low weight. Specification 5.
2. During the rolling-off phase of a step, the forefoot part 2 of Appellants' spring plate 1 is deformed as indicated by the two arrows in Fig. 1. The deflection places the outside of the forefoot part in tension and the inside of the forefoot part in compression, storing the energy necessary for the deflection. Upon stretching of the foot, the forefoot part releases the stored energy by elastically springing back

to its original shape, thereby contributing to pushing off the toes from the ground (i.e., effectively catapulting the foot in a forward direction). Specification 6.

3. Appellants describe the plate as being sufficiently stiff that deformations in remaining parts of the shoes are not significant but not so stiff that movements of the athlete during running are obstructed (Specification 6).
4. Bauer discloses an outer sole 1 for a sport shoe. The sole is normally a molded or injection molded elastic material such as polyurethane, polyamide, polyimide, Duroplast®, or the like, or the outer sole may be in the form of a hard shell of relatively stiff material. The outer sole material may be reinforced by fibers or fabrics made of textiles, glass, minerals or carbonaceous substances (Bauer 3).
5. Bauer discloses a damping element 13 disposed on top of the sole 1 (Figs. 1 and 2). Bauer does not disclose a damping element beneath the sole 1.
6. Bauer teaches that a sport shoe having an outer sole 1 as disclosed therein assures a yielding step, especially on a hard ground surface (Bauer 7).
7. Brown ‘700 and Brown ‘409 disclose orthotic appliances or inserts adapted to be placed in an article of footwear to compensate for the *unique* foot disorder of the user. The orthotics of both Brown references are designed to properly position the plantar surface of the

midfoot to bring the person's foot back to the ideal functioning position peculiar to the person's foot (Brown '409, col. 4, ll. 27-35; Brown '700, col. 2, ll. 24-43). Both Brown references disclose orthotics having rearfoot components securable to full length blanks via recesses and plugs or protrusions.

8. The Examiner contends that Bauer's elastic outer sole 1 inherently possesses the property that it will bend elastically and then spring back to catapult the foot in a forward direction, as called for in claim 1 (Answer 3).

9. Appellants have not provided any evidence that Bauer's outer sole 1 does not possess the characteristic that it will bend elastically and then spring back to catapult the foot in a forward direction.

ANALYSIS

In rejecting claim 1 as being unpatentable over Bauer, the Examiner contends that Bauer's elastic outer sole 1 inherently possesses the property that it will bend elastically and then spring back to catapult the foot in a forward direction, as called for in claim 1 (Answer 3). The Examiner contends that this is an inherent property of substantially rigid elastic/plastic plates. *Id.* Although the Examiner rejects claim 1 under 35 U.S.C. § 103(a), the Examiner does not find any claimed feature lacking in Bauer or propose any modification to Bauer to arrive at the claimed invention. Accordingly, the Examiner's theory of obviousness appears to be based on anticipation. A

disclosure that anticipates under 35 U.S.C. § 102 also renders the claim unpatentable under 35 U.S.C. § 103, for "anticipation is the epitome of obviousness." *Jones v. Hardy*, 727 F.2d 1524, 1529, 220 USPQ 1021, 1025 (Fed. Cir. 1984). *See also In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982); *In re Pearson*, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974).

Appellants argue the Examiner has not provided any basis in fact or cogent technical reasoning that Bauer's outer sole 1 necessarily possesses the characteristic that it will effectively catapult a foot in a forward direction when the plate springs back (Br. 10-12).

Under principles of inherency, when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991).

When relying on the theory of inherency, the examiner has the initial burden of providing a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic reasonably flows from the teachings of the applied prior art. *See In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138 (Fed. Cir. 1986). Once the Examiner establishes a prima facie case of anticipation based on inherency,

the burden shifts to Appellants to prove that the prior art does not possess the characteristic at issue. *Id.*

Therefore, the issue before us in the appeal of the rejection of claim 1 is whether the Examiner has provided a basis in fact and/or technical reasoning to reasonably support the determination that Bauer's outer sole 1 necessarily possesses the characteristic that it will effectively catapult the foot in a forward direction when it springs back, as called for in claim 1, so as to shift the burden to Appellants to prove that Bauer's outer sole does not possess this characteristic.

Bauer discloses an ***elastic*** outer sole material. The term "elastic" is generally understood in the art to describe the ability of a material or object to spring back to its original size, shape, or position after being stretched, flexed, etc. *See, e.g.,*Victoria Neufeldt et al., *Webster's New World Dictionary, Third College Edition* 435 (Simon & Schuster, Inc. 1988). One skilled in the art of shoe-making would have understood that the outer sole of a sports shoe is flexed during the walking movement of the wearer. The skilled artisan would further have understood from Bauer's description of the outer sole 1 as being elastic that the outer sole will tend to spring back to its original shape, generally as shown in Fig. 1, with the forefoot portion being generally planar, thereby effectively catapulting the foot in a forward direction.

Moreover, Bauer discloses molding the outer sole from a resin material such as polyurethane, polyamide, polyimide, Duroplast®, or the

like, reinforced by fibers of carbonaceous material (Finding of Fact 4). The striking similarity between the disclosed material of Bauer's outer sole and the material (carbon fibers embedded in a matrix of resin) of Appellants' spring plate (Finding of Fact 1), when read in light of Bauer's description of the outer sole material as "elastic," provides a factual basis to reasonably support the Examiner's determination that Bauer's outer sole 1 necessarily possesses the characteristic that it will effectively catapult the foot in a forward direction when it springs back, as called for in claim 1, so as to shift the burden to Appellants to prove that Bauer's outer sole does not possess this characteristic. Appellants have not come forth with any evidence to so prove.

In light of the above, we conclude that Appellants have failed to demonstrate that the Examiner erred in rejecting claim 1 as being unpatentable over Bauer. We therefore sustain the rejection of claim 1, as well as the like rejection of claims 8 and 9 which Appellants have not argued separately from claim 1.

We also sustain the rejections of claim 20 as being unpatentable over Bauer in view of Brown '700 and Bauer in view of Brown '409, as Appellants have not challenged such with any reasonable specificity (*see In re Nielson*, 816 F.2d 1567, 1572, 2USPQ2d 1525, 1528 (Fed. Cir. 1987))

With respect to the rejections of claims 2-4 as being unpatentable over Bauer in view of Brown '700 and claims 2-7 as being unpatentable over Bauer in view of Brown '409, the issue is whether a forefoot stiffness within

the range recited in claim 2 and with an energy loss in the range recited in claim 3 would have been obvious characteristics for Bauer's outer sole.

Claims 2 and 3 depend from claim 1 and further recite that the forefoot part comprises a stiffness between about 40 N/mm and about 120 N/mm and that the plate has an associated energy loss as a result of bending the plate of less than about 5%. The Examiner contends that the selection of materials yielding such properties for Bauer's outer sole to give the desired stiffness and still allow for complete energy transfer from the heel to the toe of the user to aid in toe-off would have been obvious to one of ordinary skill in the art (Answer 4-5).

As discussed above, Bauer and Appellants both disclose carbon fiber-reinforced resin matrix material for the outer sole or spring plate. Additionally, both Bauer and Appellants describe a relatively stiff sole which is not so stiff that it would impede assurance of a yielding step on hard surfaces or obstruct the movements of the athlete during running (Findings of Fact 3, 4, and 6). Such similarity in disclosed materials and purpose reasonably supports the determination that one of ordinary skill in the art would have arrived at the claimed ranges of stiffness and energy loss through routine optimization of stiffness and freedom of movement.

Discovery of an optimum value of a result effective variable (in this case, the optimum stiffness and energy loss) is ordinarily within the skill of the art. *See In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Moreover, where the difference between the claimed invention and the prior art is some range or other variable within the claims, Appellants must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990).

While Appellants explain that the claimed stiffness and energy loss ranges yield desirable results (Specification 6-7), the impact of the stiffness and energy loss ranges on the performance of Appellants' article of footwear do not appear to be unexpected. On the contrary, the results appear to have been quite predictable to one of ordinary skill in the art. We therefore conclude that the stiffness range recited in claim 2 and the energy loss range recited in claim 3 would have been obvious characteristics for the Bauer outer sole. Accordingly, we sustain the rejections of claims 2 and 3 as being unpatentable over Bauer in view of Brown '700 and Bauer in view of Brown '409. Appellants have not argued separately the patentability of claims 4-7 apart from claims 2 and 3, thereby permitting them to fall with claims 2 and 3 (see *In re Young*, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); *In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978)). The rejections of claim 4 as being unpatentable over Bauer in view of Brown '700 and claims 4-7 as being unpatentable over Bauer in view of Brown '409 are sustained.

We shall not sustain the rejections of claims 10-14, 16 and 21 as being unpatentable over Bauer in view of Brown '700, claim 13 as being unpatentable over Bauer in view of Brown '409, claim 15 as being unpatentable over Bauer in view of Brown '700 and Toyama, and claims 17-19 as being unpatentable over Bauer in view of Brown '700 and Sessa. The teachings of Bauer are directed to an outer sole 1, not to a midsole, insole or orthotics or inserts. Brown '700 and Brown '409 are directed specifically to orthotics or inserts adapted to be inserted into a mass-produced article of footwear to properly position the plantar surface of the midfoot to bring the person's foot back to the ideal functioning position peculiar to the person's foot (Finding of Fact 7). The teachings of the Brown references are not directed to outer soles, outsoles, midsoles or insoles[1] and the differences in function between orthotic inserts and outer soles are such that one skilled in the art would not have looked to the teachings of the Brown references to modify Bauer's outer sole in the manner proposed by the Examiner to arrive at the claimed invention. The Examiner's additional application of Toyama and Sessa do not make up for the deficiency in the combination of Bauer in view of Brown '700. Additionally, claim 10 recites that the plate forms an insole of the article of footwear. Bauer's outer sole 1 is not an insole and the Examiner has not cogently explained why it would have been obvious to utilize Bauer's outer sole as an insole rather than an outsole. Moreover, the Examiner has not addressed, on the record, the limitation in claim 21 that at

[1] Appellants have cited an art-recognized definition of "insole" (Br. 19).

1 least one damping element is disposed *beneath* the plate. While Bauer
2 discloses a damping element 13 above the sole 1, Bauer does not disclose a
3 damping element beneath the sole 1 (Finding of Fact 5). The Examiner's
4 application of Brown '700 does not address this deficiency.

5 SUMMARY

6 We sustain the rejections of claims 1, 8 and 9 as being unpatentable
7 over Bauer, claims 2-4 and 20 as being unpatentable over Bauer in view of
8 Brown '700, and claims 2-7 and 20 as being unpatentable over Bauer in
9 view of Brown '409. We reverse the rejections of claims 10-14, 16 and 21
10 as being unpatentable over Bauer in view of Brown '700, claim 13 as being
11 unpatentable over Bauer in view of Brown '409, claim 15 as being
12 unpatentable over Bauer in view of Brown '700 and Toyama, and claims 17-
13 19 as being unpatentable over Bauer in view of Brown '700 and Sessa. The
14 examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

vsh

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