

United States Court of Appeals for the Federal Circuit

2006-1628

MIKEN COMPOSITES, L.L.C.,

Plaintiff-Appellee,

v.

WILSON SPORTING GOODS COMPANY,

Defendant-Appellant.

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Appealed from: United States District Court for the District of Minnesota

Senior Judge David S. Doty

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Appeal from the United States District Court for the District of Minnesota in case no. 02-CV-769, Senior Judge David S. Doty.

DECIDED: February 6, 2008

Before NEWMAN, SCHALL, and LINN, Circuit Judges.

LINN, Circuit Judge.

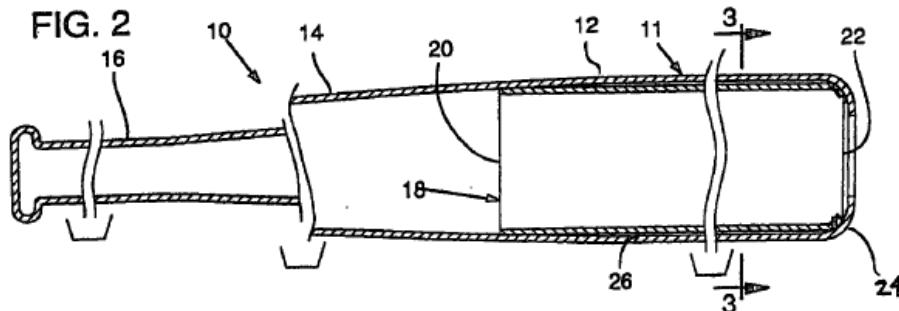
Litigation stemming from the enforcement of U.S. Patent No. 5,415,398 ("the '398 patent") returns to this court for the third time, having visited us on two prior occasions in appeals from two different suits against two other accused infringers. See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322 (Fed. Cir. 2006); DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314 (Fed. Cir. 2001). In this case, Wilson Sporting Goods Company ("Wilson") appeals from the decision of the United States District Court for the District of Minnesota granting the motion of Miken Composites, L.L.C. ("Miken") for summary judgment of non-infringement of claims 1 and

18 of the '398 patent. Miken Composites, L.L.C. v. Wilson Sporting Goods Co., No. 02-CV-769 (D. Minn. Aug. 10, 2006) ("Summary Judgment Opinion"). Because the district court's claim construction was not erroneous, and because the district court correctly concluded that no reasonable jury could find that Miken's bats infringed the '398 patent, either literally or under the doctrine of equivalents, we affirm.

I. BACKGROUND

Wilson is the current assignee of the '398 patent, which relates to "softball and baseball bats and more particularly relates to the use of structural members inside such bats to improve their impact response." '398 patent col.1 ll.8–11. The patent begins with a description of the difficulties of designing aluminum bats with optimal tubular wall thickness in the prior art. According to the patent, making the aluminum wall of a bat thin enables a large amount of "elastic deflection," which results in superior power transfer and thus better "slugging" capacity. However, if the wall is too thin, there is a risk of "permanent plastic deformation," which "lessens the power transfer to a ball and leaves the bat permanently dented." Id. col.1 ll.24–44. On the other hand, if the aluminum wall is too thick, the bat will be too stiff, and will "respond[] with relatively little spring, resulting in lower power transfer." Id. col.1 ll.44–48.

The '398 patent discloses an improved bat design including "a tubular insert 18 . . . suspended within the impact portion 12 of the tubular frame." Id. col.2 ll.44–49.



The preferred embodiment of the '398 patent is illustrated in Figure 2, above. In Figure 2, the insert is identified as member 18 and is described as having an "outer diameter . . . slightly less than the inner diameter of the tubular frame impact portion 12." Id. col.2 II.62–66. The insert "contacts the tubular frame only at the interference fits [at the ends of the insert]," such that "[a] narrow, uniform gap 26 exists between the insert 18 and the inner wall of the impact portion 12 [of the frame]." Id. col.2 II.62–68. According to this embodiment of the invention, "the insert is inserted into the tubular frame 11," "the gap 26 is filled with a lubricant, such as grease," and these components together "yield[] a mechanical system with characteristics similar to a leaf spring." Id. col.3 II.3–6, 16–19. The "leaf-spring-like suspension of the insert 18 within the tubular frame" adds "snap" to the rebound of the bat after coming into contact with a ball, and thus "yields an improved transfer of power to the batted ball, and a heightened 'slugging' capacity for the bat." Id. col.3 II.36–47.

Miken brought a declaratory judgment action against Wilson seeking, inter alia, a declaration that several of its bat models, specifically the Viper, hhd, Intensit-E, Velocit-E, Ultra, Ultra II, Velocit-E II, Edge, and M-Pulse, did not infringe claims 1, 15, or 18 of the '398 patent. Wilson counterclaimed alleging infringement of the '398 patent. After the district court issued a claim construction order, Miken Composites, L.L.C. v. Wilson Sporting Goods Co., No. 02-CV-769 (D. Minn. July 26, 2004), Wilson abandoned its allegations with respect to claim 15. Miken then moved for summary judgment of non-infringement as to asserted claims 1 and 18 of the '398 patent and of invalidity with respect to claim 18 only. The district court initially stayed all proceedings pending this court's resolution of the appeal in the Hillerich case, which involved the same claims of

the '398 patent. Following the issuance of our decision in that case, the parties were permitted to submit supplemental briefs addressing the relevance of the Hillerich opinion.

The asserted claims of the '398 patent read as follows, with disputed provisions emphasized:

1. A bat, comprising:

a hollow tubular bat frame having a circular cross-section; and

an insert positioned within the frame, the insert having a circular cross-section, the insert having first and second ends adjoining the tubular frame, the insert being separated from the tubular frame by a gap forming at least part of an annular shape along a central portion between said first and second ends, the frame elastically deflectable across the gap to operably engage the insert along a portion of the insert between the insert first and second ends.

18. A bat, comprising:

a hollow tubular bat frame having a small-diameter handle portion and a large-diameter impact portion having a circular cross-section with an inner and outer diameter;

at least one insert having a substantially circular cross-section with an outer diameter less than the inner diameter of the frame impact portion, the insert being held within the impact portion; and

the impact portion being inwardly elastically deflectable such to establish a tight interference fit between the insert and the impact portion.

The parties' contentions regarding infringement revolved around two limitations.

The first of these is the "insert" limitation found in both claim 1 and claim 18. The second is the "gap" limitation expressly recited in claim 1 as "a gap forming at least part of an annular shape" between the insert and the bat frame, such that "the frame [is] elastically deflectable across the gap to operably engage the insert." Although claim 18 does not recite a "gap" in the terms used in claim 1, it does require that "the impact portion be[]

inwardly elastically deflectable such to establish a tight interference fit between the insert and the impact portion.” The district court noted that, based on this language, “the Federal Circuit [has] found the requirement that a ‘gap’ exist between the impact portion and the insert to be implicit in claim 18.” Summary Judgment Opinion at 15 n.5 (citing Hillerich, 442 F.3d at 1328–29).

Miken conceded that the Viper, hhd, Intensit-E, and Velocit-E bats (collectively, “the non-carbon bats”) contain “inserts” within the meaning of the claim language “because they are composed of a structural member that is either hydraulically or manually pushed into a separately manufactured frame.” Id. at 10 n.2. Miken argued, however, that the Ultra, Ultra II, Velocit-E II, Edge, and M-Pulse bats (collectively, “the carbon bats”) do not contain any “insert” because they are manufactured differently, using a successive layering process described by the district court as follows:

An internal component is first fabricated by rolling alternate layers of preimpregnated carbon fiber reinforced/epoxy tape, polypropylene shrink tape and nylon shrink tape over a mandrel, curing the component at an elevated temperature, removing the external layers of shrink tape and then dipping the component into a release agent. Each internal component is comprised of two layers of carbon fiber reinforced epoxy/tape and the placement and quantity of shrink tape layers vary slightly depending on the specific bat. Dry pre-woven fabrics are then tightly drawn over the internal component, and the entire assembly is infused with resin.

Id. at 10 (internal citations omitted). Thus, at bottom, the parties’ dispute centered around whether the “internal component” of the carbon bats constitutes an “insert” and whether a “gap” is present between the bat frame and insert, if any, in both the carbon and non-carbon bats.

In due course, the district court granted Miken’s motion for summary judgment of non-infringement. Id. at 8. The district court concluded that the carbon bats “do not

infringe claims 1 or 18 of the '398 patent, literally or by equivalency, because they do not have an insert." Id. at 13. Moreover, the district court concluded that "no reasonable jury could find that [the non-carbon bats] literally infringe" because they do not "contain a 'gap' for purposes of claim 1, or a space sufficient to allow contact upon elastic deflection, for purposes of claim 18." Id. at 18–19. As for validity of claim 18, the district court rejected Miken's challenge. Id. at 8. Wilson timely appealed the district court's noninfringement determinations. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II. DISCUSSION

A. Standard of Review

We review a district court's grant of summary judgment de novo. Hilgraeve Corp. v. McAfee Assocs., Inc., 224 F.3d 1349, 1352 (Fed. Cir. 2000). Summary judgment is proper only if there are no genuine issues of material fact and the movant is entitled to judgment as a matter of law. See Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 250 (1986).

Claim construction is an issue of law, see Markman v. Westview Instruments, Inc., 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), over which we exercise plenary review, Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). A determination of non-infringement, either literal or under the doctrine of equivalents, is a question of fact. See IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1429 (Fed. Cir. 2000). "Thus, on appeal from a grant of summary judgment of non-infringement, we must determine whether, after resolving

reasonable factual inferences in favor of the patentee, the district court correctly concluded that no reasonable jury could find infringement.” Id.

B. Analysis

1. Claim Construction

Wilson disputes the district court’s claim constructions of the “insert” limitation of claims 1 and 18 and the “gap” limitation of claim 1. Wilson further contends that the district court erred in applying its construction of the “gap” limitation to claim 18 because the word “gap” does not appear in claim 18.

a. The “Insert” Limitation

Relying upon our prior discussion of the term “insert” in Hillerich, the district court held that “[t]he term ‘insert’ does not possess a particular meaning in the field of art encompassed by the ’398 patent,” and that “[g]iven its ordinary and customary meaning, ‘insert’ means ‘something inserted or intended for insertion.’” Summary Judgment Opinion at 11 (quoting Hillerich, 442 F.3d at 1330). Although not discussed by the district court in this case, we had also previously addressed the “insert” limitation in DeMarini. In that case, we accepted the “ordinary” and uncontested definition proffered by the then-owner of the ’398 patent as “anything put or fit into something else.” DeMarini, 239 F.3d at 1330. We also noted that “the bat frame, which includes the impact portion and the handle, completely surrounds and is separate from the ‘insert.’” Id.

Wilson contends that the “insert” limitation is purely structural, and that it does not matter whether an insert is placed into a pre-existing frame or whether a frame is built around it. Wilson argues that by holding that the carbon bats do not contain an

“insert” within the meaning of the claims because the internal component is not “inserted” into anything, the district court committed the claim construction error of importing a process limitation into claims directed to a product. See Hazani v. U.S. Int'l Trade Comm'n, 126 F.3d 1473, 1479 (Fed. Cir. 1997) (distinguishing between product and product-by-process claims).

Miken responds that construing the term “insert” to encompass any separate, internal, independently moveable structural element would impermissibly broaden the scope of the claims and would read out the “insert” limitation entirely. Miken further argues that Nystrom v. Trex Co., 424 F.3d 1136, 1142–46 (Fed. Cir. 2005) (limiting the term “board” to “wood cut from a log”), demonstrates that how a product is made can be dispositive evidence of non-infringement of a product claim.

We are not persuaded by Wilson’s arguments regarding the “insert” limitation. To the extent that these arguments are relevant to claim construction, we address them here; to the extent they relate to the second step of the infringement analysis, however, we address them below. We note first that nothing in the claims or specification indicates, explicitly or implicitly, that the inventor used the term in a novel way or intended to impart a novel meaning to it. To the contrary, the claims and written description of the ’398 patent consistently use the term “insert” in the sense of its ordinary meaning as “something inserted or intended for insertion.” Webster's II New College Dictionary (3d ed. 2005); see also Webster's Third New International Dictionary Unabridged (1993) (defining “insert” as “something that is inserted or is for insertion”); ’398 patent col.3 l.5 (“the insert is inserted into the tubular frame 11”); id. col.4 ll.24–28 (“the insert 18 is coated with the lubricant before being inserted into the tubular frame

11"). Had the patentee, "who was responsible for drafting and prosecuting the patent, intended something different, it could have prevented this result through clearer drafting." Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 951 (Fed. Cir. 1993). Moreover, the parties have presented no evidence to suggest that the term "insert" in the context of the patent has a particular meaning differing from the ordinary and customary meaning in the field of art encompassed by the '398 patent. The term "insert" is a common term used to denote structure. To contend, however, as Wilson does, that it does not matter whether an insert is placed into a pre-existing frame or whether a frame is built around it ignores that ordinary and customary meaning, notwithstanding Wilson's attempts to categorize the term "insert" as "purely structural." The issue would have been different if the claims contained the language argued in Wilson's briefs; to wit, "internal structural member," Wilson Br. at 31, 38, or "multi-wall product," Reply Br. at 3, but they do not. It is the language of the claims not the argument that governs.

As for Wilson's contention that the district court impermissibly imported a process limitation into a product claim, we disagree. As we have discussed, the district court merely adopted an ordinary meaning of the term "insert." Summary Judgment Opinion at 11. That this ordinary meaning has functional attributes does not change the fact that the claim recites a structural component, albeit one possessed with certain understood characteristics. Cf. Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed. Cir. 1996) (noting that structural elements can be "expressed in functional terms" and citing examples "such as 'filter,' 'brake,' 'clamp,' 'screwdriver,' [and] 'lock'"). Miken further supports its argument by relying on Nystrom. We agree that Nystrom supports

Miken's position but for a reason different from the one presented. In Nystrom, we held that the “[b]roadening of the ordinary meaning of a term in the absence of support in the intrinsic record indicating that such a broad meaning was intended violates the principles articulated in [Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc)].” Nystrom, 424 F.3d at 1145-46. Based on Phillips, a claim term should not be read to encompass a broader definition “in the absence of something in the written description and/or prosecution history to provide explicit or implicit notice to the public—i.e., those of ordinary skill in the art—that the inventor intended a disputed term to cover more than the ordinary and customary meaning revealed by the context of the intrinsic record.” Id. at 1145. Here, Wilson has not identified any such notice in the intrinsic record of the '398 patent. Accordingly, and because we discern no claim construction error in the district court's treatment of the “insert” limitation, we affirm this aspect of the judgment.*

* We note that the claim construction we have affirmed in this case is fully consistent with the interpretation given to the same limitation in Hillerich, 442 F.3d at 1330 (“something inserted or intended for insertion”), and DeMarini, 239 F.3d at 1330 (“anything put or fit into something else”). Indeed, for us not to adopt the same claim construction in a case such as this, in which the construction of the claim term in question was a necessary predicate to the determination of a prior litigation before this court and is evident from the face of the intrinsic record without resort to expert testimony, would run counter to the Supreme Court’s guidance on stare decisis in Markman: “treating interpretive issues as purely legal will promote (though it will not guarantee) intrajurisdictional certainty through the application of stare decisis.” Markman, 517 U.S. at 391; see also Key Pharm. v. Hercon Labs. Corp., 161 F.3d 709, 716 (Fed. Cir. 1998) (“We do not take our task lightly in this regard, as we recognize the national stare decisis effect that this court’s decisions on claim construction have.”); Cybor, 138 F.3d at 1455 (noting that in Markman “the Supreme Court endorsed this court’s role in providing national uniformity to the construction of a patent claim”); Zenith Radio Corp. v. United States, 783 F.2d 184, 187 (Fed. Cir. 1986) (holding that stare decisis applied where resolution of issue was a “necessary predicate” to earlier Federal Circuit ruling).

b. The “Gap” Limitation

With respect to the language of claim 18 requiring “the impact portion being inwardly elastically deflectable such to establish a tight interference fit,” the district court held “the requirement that a ‘gap’ exist between the impact portion and the insert to be implicit in claim 18.” Summary Judgment Opinion at 15 n.5 (citing Hillerich, 442 F.3d at 1328–29). For both this limitation and the “gap” limitation of claim 1, the district court adopted the claim construction articulated in Hillerich. See id. at 7, 15–16; see also DeMarini, 239 F.3d at 1330 (declining to construe these limitations).

On appeal, Wilson argues that the district court read an additional limitation into the claims by holding that the separations measured in the accused bats, which the district court characterized as “irregular and sporadic,” were not large enough or consistent enough to be considered a “gap.” Wilson also contends that the district court’s claim construction ignored the real “invention” of the ’398 patent—i.e., a bat which yields a mechanical system with characteristics similar to a leaf-spring. Wilson further argues that the district court erroneously read the “gap” limitation of claim 1 into claim 18, in which the word “gap” does not appear. Miken responds by defending the district court’s claim construction and by arguing that the inventor disclaimed “discontinuous and variable spaces” between the frame and insert during the prosecution of the ’398 patent.

These arguments are for the most part more germane to infringement, and thus we address them in the infringement discussion below. To the extent that they do relate to claim construction, they do not persuade us that the district court erred in adopting the claim construction of this court in Hillerich. As we held in Hillerich, “[a]lthough ‘gap’

does not appear in claim 18, the claim term ‘a tight interference fit’ implies some sort of space between the frame and the insert.” Hillerich, 447 F.3d at 1325. However, “claims 1 and 18 . . . do not foreclose some contact between the insert and frame.” Id. at 1328. We therefore “define[] ‘gap’ for the purposes of claims 1 and 18 of the ’398 patent as ‘a separation,’ . . . [which] may be localized, so that a cross-section of the bat in the impact region need not possess circular symmetry.” Id. at 1329. Specifically with respect to claim 18, “in contrast to the insert of claim 1, the insert in this claim need not be perfectly circular. Rather the claim requires only space between the frame and the insert to allow for contact when the impact portion is elastically deflected.” Id. Furthermore, “claim 18 also does not foreclose the possibility that contact between the frame and insert occurs, before impact, at some point other than that at which impact occurs.” Id. The district court adopted this same claim construction analysis, see Summary Judgment Opinion at 7, 15–16, and we herein affirm that determination.

2. Infringement

a. The Carbon Bats

The district court held that the carbon bats did not infringe because “Wilson provide[d] no evidence to support a finding that the carbon bats contain anything inserted or intended for insertion” as is apparent from Miken’s process of manufacturing multi-layered frames around what becomes an internal component. Id. at 10–11. It also rejected Wilson’s argument for infringement under the doctrine of equivalents, which relied upon its expert’s “load deflection tests” to establish that the layers of the carbon bats were capable of independent movement. Id. at 11–12. The district court held that because these tests could not serve as a basis to find equivalency of the insert, they

established “at most the equivalency of the accused products as a whole.” Id. at 11–13 (citing Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997) (holding that “[t]he determination of equivalence should be applied as an objective inquiry on an element-by-element basis”)). It further held that “to apply the doctrine of equivalents in this case would vitiate the ‘insert’ limitation of claims 1 and 18 in contravention of the ‘all elements’ rule,” based on its understanding of the carbon bats as merely multi-layered frames. Id. at 13 (citing Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp., 149 F.3d 1309, 1316–17 (Fed. Cir. 1998)). Because the district court found that the carbon bats did not meet the “insert” limitation, it did not consider whether or not these bats contained a “gap” within the meaning of claims 1 or 18. Id. at 13 n.4.

On appeal, Wilson presents two arguments for literal infringement. First, Wilson argues that Miken’s own expert admitted that Miken’s carbon bats each have an “insert.” Second, Wilson contends that record evidence establishes that the carbon bats “have separate internal structural members, each of which moves independently of the frame.” Miken responds that Wilson has presented no evidence that any part of the carbon bats was ever “inserted or intended for insertion” into a hollow bat frame, and that whether or not the carbon bats contain separate internal structural elements capable of independent movement is not dispositive of the existence of an “insert” as that claim term has been construed. Miken further contends that the alleged “insert” of the carbon bats is not structurally distinct from the frame. Finally, Miken draws our attention to its expert’s supplemental declaration, which clarifies that

[a]s in all previous documents [including the declaration cited by Wilson] the term “insert” is used to identify an inner object or layer and the term frame is used to refer to an outer object or layer. The terms “insert” and

“frame” are not used to imply any information regarding the nature of the manufacturing and/or assembly processes.

J.A. at 1651. We agree with Miken that neither its expert’s casual reference to layers of the carbon bats as “inserts,” nor the possibility that these layers comprise separate structures capable of independent movement—without more—suffice to establish literal infringement. Even when we “view the evidence in a light most favorable to [Wilson] and draw all reasonable inferences in its favor,” we conclude that Wilson points to no evidence that any component of the carbon bats was ever “inserted or intended for insertion,” and thus “there is no genuine issue of material fact and [Miken] is entitled to judgment as a matter of law.” SRI Int’l v. Matsushita Elec. Corp., 775 F.2d 1107, 1116 (Fed. Cir. 1985) (en banc). Accordingly, we affirm the district court’s judgment of no literal infringement as to the carbon bats.

Wilson also argues infringement under the doctrine of equivalents. Again Wilson asserts that any bat having multiple layers exhibiting independent movement in the nature of a leaf spring must infringe the “insert” limitation. As evidence of this, it offers its expert’s “load deflection tests,” which compared the performance of the accused bats as manufactured to the same bats with the layers bonded together with epoxy.

We agree with the district court that these tests demonstrate, at most, “the equivalency of the accused products as a whole,” Summary Judgment Opinion at 12, and that Wilson has not provided any factual basis or expert testimony to support “an objective inquiry on an element-by-element basis” with respect to the insert limitation. Warner-Jenkinson, 520 U.S. at 40 (noting additionally that the analysis should include “[a] focus on individual elements and a special vigilance against allowing the concept of equivalence to eliminate completely any such elements”). Moreover, Wilson’s expert’s

explanation of the test results undermines Wilson's position; he opined only that “[t]his increase in deflection, from the unglued to the glued, is the measure of independent movement, and the existence of a ‘gap.’” He did not discuss the equivalence of any structural component of Mikken's bats to the “insert” of claims 1 and 18. Even according to Wilson's own description, the load deflection tests merely demonstrate that a stiff, fixed, multi-wall bat underperforms a bat with a multi-wall structure allowing independent movement in the nature of a leaf spring.

Regardless of whether the carbon bats were designed “in order to achieve leaf-spring-like action as specified in the '398 patent,” as alleged by Wilson, the '398 patent does not claim a bat with leaf-spring-like action, nor one with separate layers capable of independent movement. Rather, claims 1 and 18 require an “insert,” and with respect to this limitation, Wilson has provided “no particularized testimony from an expert or person skilled in the art that [(a)] specifically addressed equivalents on a limitation-by-limitation basis; [(b)] explained the insubstantiality of the differences between the patented method and the accused product; or [(c)] discussed the function, way, result test.” Aqua-Tex Indus., Inc. v. Techniche Solutions, 479 F.3d 1320, 1329 (Fed. Cir. 2007) (internal quotation marks omitted). Thus, Wilson's “lawyer argument and generalized testimony about the accused product . . . fail[s] to demonstrate a genuine issue of material fact that would prevent the grant of summary judgment.” Id.

Wilson also contends that there is at least a genuine issue of material fact regarding the existence of a “gap” in the carbon bats. We do not address this issue because we, like the district court, find the lack of an “insert” to be dispositive. See

Summary Judgment Opinion at 13 n.4. Thus, we affirm the judgment of non-infringement with respect to the carbon bats.

b. The Non-Carbon Bats

While the non-carbon bats indisputably contain “inserts,” see id. at 10 n.2, the district court held that they did not infringe claims 1 or 18 of the ’398 patent because they do not contain a “gap” between the insert and impact portion. Based on the construction of “gap” as a “separation,” the district court found that because the Intensity-E and Velocit-E bats included an insert manufactured to have an outer diameter of between 2.004 to 2.008 inches and “hydraulically forced into a frame that has an internal diameter equal to or less than 2.000 [inches],” there was “no evidence of any spatial separation between the impact portion and insert.” Id. at 14, 16. With respect to the hhd and Viper bats, the district court noted that although microscopy images revealed spatial separations, which it characterized as “irregular and sporadic,” these separations were “intermittent and discontinuous in nature,” and the images also established “intermittent and intimate contact throughout the interface between the impact portion and the inserts” of both the hhd and Viper bats. Id. at 17. The district court thus held that the non-carbon bats lacked a “gap,” across which the “frame [is] elastically deflectable . . . to operably engage the insert,” as required by claim 1.

The district court further held that because the non-carbon bats were designed to maintain an interference fit between the insert and impact portion prior to being under load, the impact portion is not “inwardly elastically deflectable such to establish a tight interference fit between the insert and the impact portion,” as required by claim 18. Id. at 16–17. Because Wilson did not argue this evidence, but rather relied on the load

deflection tests to establish independent movement between the inserts and impact portions of the frames to prove “the leaf-spring elastic impact response taught by the ’398 patent,” the district court held that under a construction of “gap” as a “separation” rather than as “independent movement of the insert and impact portion,” these bats do not infringe. Id. at 18–19.

On appeal, Wilson primarily contends that the real invention of the ’398 patent is a bat comprising a frame and an insert which “yield[] a mechanical system with characteristics similar to a leaf-spring,” and that its expert’s load deflection tests establish a gap or separation sufficient to permit independent movement between the frames and inserts of the accused bats. It further asserts that the microscopic voids identified in certain non-carbon bat models suffice to satisfy the “gap” limitation because “claims 1 and 18 . . . do not foreclose some contact between the insert and frame.” Hillerich, 442 F.3d at 1328. Wilson did not raise any arguments under the doctrine of equivalents with respect to these claim limitations.

Miken responds that as an initial matter, Wilson has offered no evidence establishing any separation in either the Intensit-E or Velocit-E bat models. Miken argues that none of the non-carbon bats meet claim 18’s requirement that inserts have “an outer diameter less than the inner diameter of the frame impact portion.” Miken asserts that it introduced uncontested evidence that the Intensit-E and Velocit-E bats have inserts measuring between 2.004 and 2.008 inches prior to insertion that are inserted into frames having inner diameters of 2.000 inches. Miken similarly cites evidence that the hhd and Viper bats have inserts measuring 2.00 inches that are inserted into frames having inner diameters of 2.00 inches.

Miken also argues that because the hhd and Viper models exhibit contact between the frames and inserts at multiple points both circumferentially and longitudinally throughout the impact portion, these bats can meet neither the interpretation of claim 1 requiring that the insert be perfectly circular, see id. at 1329 (noting that “in contrast to the insert of claim 1, the insert in [claim 18] need not be perfectly circular”), nor the holding that claim 18 permits contact between the frame and insert “before impact, at some point other than that at which impact occurs,” id. (emphasis added).

Miken further contends that the inventor, during the prosecution of the '398 patent, disclaimed gaps that are “discontinuous and variable shaped spaces” such as those identified in the hhd and Viper bats; that prior art bat designs would read on Wilson’s interpretation of the claims as applied to Miken’s bats; and that Wilson has provided no evidence that the microscopic voids permit the frame to “elastically deflect[] across the gap to operably engage the insert” according to claim 1, or to “elastically deflect[] such to establish a tight interference fit between the insert and the impact portion” according to claim 18. Finally, Miken argues that whether or not the accused bats permit independent movement of the insert within the frame is irrelevant to the question of literal infringement—i.e., whether a separation exists between the insert and frame.

We agree with the district court’s determination for many reasons. Even when viewing the evidence in the light most favorable to Wilson and drawing all reasonable inferences in its favor, as we must, Wilson has failed to establish a genuine issue of material fact sufficient to preclude summary judgment. We agree with Miken that

neither the Intensit-E nor the Velocit-E bats can infringe either claim; Wilson makes no attempt to provide evidence of any gap or separation in these models. Nor does Wilson contest the district court's findings concerning the relative size of the inserts and frames in the non-carbon bats—none of which satisfy claim 18's requirement that the outer diameter of the insert be less than the inner diameter of the frame. We also agree that the undisputed presence of “intermittent and intimate contact throughout the interface between the impact portion and the inserts of the hhd and Viper bats,” Summary Judgment Opinion at 17, precludes a finding of infringement of either claim 1 or 18 under our prior holding in Hillerich. And even though claim 1 permits “some contact between the insert and frame,” even within the impact region, Hillerich, 442 F.3d at 1328–29 (emphasis added), Wilson fails to explain why this should encompass the substantial contact inherent in bats where separations are “intermittent and discontinuous” or “irregular and sporadic.” Summary Judgment Opinion at 17. Nor does Wilson provide evidence to establish that these microscopic separations are closed upon impact as required by both asserted claims.

Although Wilson attempts to link the load deflection tests to the existence of a gap or separation between the inserts and frames by arguing that they prove a “sufficient separation . . . to permit the independent movement of the frame and insert,” its own concessions regarding leaf-spring systems demonstrate that the existence of leaf-spring-like bat functionality does not prove the existence of a separation between the frames and inserts. Wilson freely admits that “there is no requirement that the layers of a leaf-spring system . . . not be in contact. Leaf spring deformation and rebound occurs with adjacent surfaces in contact with each other, provided that the

structure permits independent sliding motion.” Wilson Br. at 30 n.2 (second emphasis added); see also *id.* at 5 n.1 (“Leaf-springs operate with adjacent surfaces in contact, providing that some sliding motion is permitted at their interface.”). Therefore, evidence establishing independent motion between the inserts and frames of Mikken’s non-carbon bats does not demonstrate a “separation” as required by claims 1 and 18 of the ’398 patent. Because Wilson has raised no genuine issue of material fact regarding infringement under the “gap” limitation as construed by this court, we affirm the judgment of non-infringement with respect to the non-carbon bats.

III. CONCLUSION

For the above reasons, we conclude that the district court properly granted Mikken’s motion for summary judgment of non-infringement, and thus its judgment is

AFFIRMED.