UNITED STATES DISTRICT COURT

DISTRICT OF MAINE

GOLF TECH, LLC AND SPORTS VISION, LLC,	)	
PLAINTIFFS	)	
v.	)	**CIVIL NO. 07-194-P-H**
EDENS TECHNOLOGIES, LLC, *DBA* DANCINGDOGG GOLF,	)	
DEFENDANT	)	

MEMORANDUM DECISION AND ORDER ON MOTIONS FOR SUMMARY JUDGMENT

Golf Tech, LLC and Sports Vision, LLC (collectively "Golf Tech") complain that Edens Technologies, LLC ("Edens") is infringing their U.S. Patent No. 6,821,211 ("the '211 patent") by selling Edens' Shot Making Simulator (the "Simulator"), a device for analyzing a golfer's club swing. I construed the '211 patent claims in my August 15, 2008, Decision on Claims Construction. Both parties now have moved for summary judgment on issues of validity and infringement. I find that on one claim, 29, they have not presented sufficient argument to permit me to rule on infringement. As to the other claims, on the summary judgment record Edens cannot meet its burden of proof on its affirmative defense of invalidity, and Golf Tech has shown infringement. On claim 29, therefore, I **DENY** summary judgment of infringement to both parties but **GRANT** summary judgment to Golf Tech as to validity. On the other claims,

I **GRANT** summary judgment to Golf Tech as to infringement and validity and **DENY** summary judgment to Edens.

STATEMENT OF UNDISPUTED FACTS

In general terms, Golf Tech's '211 patent:

> describes a device consisting of a strip of reflective tape attached to the head of a golf club; a base unit that includes a golf tee and multiple sensor arrays; and a connection from the base unit to a computer. The sensor arrays, activated by the reflective tape on the club head, can detect the club head as it is swung, and generate data from the swing.

Decision on Claims Construction at 2 (Docket Item 43). To elaborate, the patent contemplates that the base unit emits light signals. Def.'s Opposing Statement of Material Facts ¶ 54 (Docket Item 62) ("Def.'s Opposing SMF"); Pls.' Response to Def.'s Statement of Additional Facts (Docket Item 67) ("Pls.' Reply SMF"). When the reflective tape on the club head reflects those light signals as the club travels along a swing path over the base unit, the reflected light strikes photodetectors. Def.'s Opposing SMF ¶ 55; Pls.' Reply SMF ¶ 55. Those photodetectors detect both when the reflected light begins (the tape's leading edge) and when the reflection stops (the tape's trailing edge). From those signals, the computer "can calculate relevant metrics, such as club head speed, height, and angle." Decision on Claims Construction at 2. Under the terms of the '211 patent, reflective tape must be used to create non-uniformity between the reflectivity of the tape and the club head. Id. at 5.

Edens acquired Golf Tech's golf simulator product, the P3Proswing, in 2004. Statement of Material Fact in Support of Pls.' Mot. for Summ. J. ¶ 4 (Docket Item 48) ("Pls.' SMF"); Def.'s Opposing SMF ¶ 4. Edens also had notice

of Golf Tech's '211 patent. Pls.' SMF ¶¶ 5, 11; Def.'s Opposing SMF ¶¶ 5, 11. In developing its own Simulator in 2005, Edens gave the P3Proswing to its engineer, believing that Golf Tech's product might be helpful for the engineer in designing Edens' Simulator. Pls.' SMF ¶ 10; Def.'s Opposing SMF ¶ 10. During the development phase of the Edens Simulator, legal counsel advised Edens that to ensure no possible infringement of Golf Tech's '211 patent, the Simulator must not use reflective tape. Pls.' SMF ¶ 14; Def.'s Opposing SMF ¶ 14.

Edens' Simulator did not use reflective tape when Edens initially placed it on the market in 2006. Pls.' SMF ¶ 15; Def.'s Opposing SMF ¶ 15. Later, however, Edens started selling the Simulator with reflective tape because customers wished to use the Simulator with drivers and fairway woods, and the Simulator was not as accurate for those clubs without the addition of reflective tape. Pls.' SMF ¶¶ 16-19; Def.'s Opposing SMF ¶ 16-19. Edens provides its customers reflective tape with a leading edge and a serrated trailing edge. Pls.' SMF ¶ 21; Def.'s Opposing SMF ¶ 21.

Edens' Simulator uses an array of optical sensors in the form of infrared emitters and detectors. Pls.' SMF ¶ 24; Def.'s Opposing SMF ¶ 24. The emitters emit infrared light up from the Simulator's swing pad, and the detectors receive the reflection of that infrared light. Pls.' SMF ¶ 25; Def.'s Opposing SMF ¶ 25. The Simulator includes a microprocessor that samples the sensors to detect changes in the sensor state as a golf club moves across the sensor array. Pls.' SMF ¶ 26; Def.'s Opposing SMF ¶ 26. The sensors detect the passage of both the leading edge and the serrated trailing edge of the

reflective tape on the club head. Pls.' SMF ¶ 27[1]; Def.'s Opposing SMF ¶ 27. After capturing the sensor data, a microprocessor sends a signal to a computer. But Edens' Simulator analyzes only the leading edge, not the trailing edge, data. Pls.' SMF ¶ 28; Def.'s Opposing SMF ¶ 28.

PATENT CLAIMS AT ISSUE

Claim 29 of Golf Tech's '211 patent claims:

> A method of analyzing a golf swing, comprising:
>
> applying a reflective material to the head of a club to form a non-uniformly-reflective surface characterized by leading and trailing edges; and
>
> sensing the leading and trailing edges of the reflective material as it passes over each of a plurality of sensors;
>
> analyzing data generated by each of the multiple sensor [sic] over which the reflective material has passed.

'211 patent, col.9 l.36-43.

Claim 31 claims:

> A golf swing analysis method for use with a golf club having a strip of reflective material that forms a non-uniformly-reflective surface characterized by leading and trailing edges, comprising the steps of:
>
> (A) emitting a light toward a location in a path of the swung golf club;
>
> (B) receiving light reflected from the reflective material; and

[1] In its statement of facts, Golf Tech asserts, citing testimony by Edens' president, that the Simulator "detects and captures changes in state corresponding to both leading and trailing edges because it detects changes in sensor state when the sensor signals change state from 'off' to 'on' and when the sensor signals change state from 'on' to 'off.'" Pls.' SMF ¶ 27. Edens objects, arguing that the record citation to the deposition testimony "does not establish what causes 'a state change.'" Def.'s Opposing SMF ¶ 27. I am not sure what the objection signifies unless it is that the president testified that "changes in state" occur when "a club *or* reflective object" passes over the sensors. Edens Dep. 67:17, Apr. 8, 2008 (Ex. A to Decl. of Sean L. Sweeney in Support of Pls.' Mot. for Summ. J.) (Docket Item 49-2) (emphasis added). In any event, Edens admits that the Simulator's serrated trailing edge generates data, which Edens characterizes as "noise" and "spurious, random signals." Def.'s Objection to Pls.' Mot. for Summ. J. at 4 (Docket Item 61). Accordingly, there is no genuine factual dispute that the Simulator's sensors detect the passage of the trailing edge.

> (C) generating at least one signal for each transition in light level reflected from the reflective material corresponding to a leading or trailing edge of the reflective material.

'211 patent, col.9 l. 49-61. Claims 38 and 39 are dependent on claim 31. Claim 38 claims "[t]he method of claim 31 further comprising the step of: (L) computing a club swing path angle. '211 patent, col.10 l. 34-35. Claim 39 claims "[t]he method of claim 31 further comprising the step of: (M) computing a club head angle." '211 patent, col.10 l.36-37.

Claim 43 claims:

> A golf swing analysis system for use with a golf club to be swung, comprising:
> a non-uniformly-reflective surface characterized by leading and trailing edges coupled to the golf club head;
> a light source configured to emit light toward a location in a path of the swung club;
> a light receiver configured to receive light reflected from the non-uniformly-reflective surface; and
> a processor configured to generate at least one signal for each transition in light level reflected from the reflective material attached to the club.

'211 patent, col.10, l.47-58.

ANALYSIS

"Patent infringement and invalidity are separate and distinct issues." Pandrol USA, LP v. Airboss Ry. Prods., Inc., 320 F.3d 1354, 1365 (Fed. Cir. 2003) (noting that "[t]hough an invalid claim cannot give rise to liability for infringement, whether it is infringed is an entirely separate question capable of determination without regard to its validity" (quoting Medtronic, Inc. v. Cardiac Pacemakers, Inc., 721 F.2d 1563, 1583 (Fed. Cir. 1983))). I therefore address infringement and validity separately.

A. Infringement

Both parties request summary judgment on literal infringement of '211 patent claims 29, 31, 38, 39 and 43.[2] Literal infringement "requires the patentee to show that the accused device contains or performs each limitation of the asserted claim." MOBA, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1313 (Fed. Cir. 2003).

Although I conducted a Markman hearing and construed the disputed terms of the patent in advance, I ran afoul of the perennial hazard of such abstract advance determinations. In other words, I determined the claims terms' meaning without yet having the specific focus of the actual infringement controversy. As a result, some of my Markman language is insufficiently precise, and the parties' argument on infringement is based in part on their differing interpretations of my Markman ruling.

I held that "the patented invention is not the analysis of a golf swing, but the addition of a reflective strip to the golf club head," Decision on Claims Construction at 1; that "generating the discriminating signals by using the reflective tape *is* the invention, not the analysis of the data that follows," id. at 7; that the claims "cover a specific method and system of sensing a swung golf club," id.; that "the core of the invention is the method of using a strip of reflective tape to enhance the sensors' ability to detect aspects of the club head as it is swung," id.; and that the invention "is not limited by what analysis is

[2] Golf Tech provided no argument that the Edens product infringes based on the doctrine of equivalents. See, e.g., Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1424 (Fed. Cir. 1997) ("The doctrine of equivalents prevents an accused infringer from avoiding infringement by changing only minor or insubstantial details of a claimed invention while retaining their essential functionality."). Accordingly, I do not consider whether the doctrine applies here.

capable of now or might be expanded to in the future," id. at 11. But in doing so, I also said that the addition of the reflective strip "permits new and additional analyses," id. at 1; that the method and system of sensing a swung golf club "in turn generates signals in a form that *can* be analyzed," id. at 7, and that "[w]hat Golf Tech invented was a new means of generating useful data," id. at 11.[3]

As a result, Golf Tech argues from the first category of statements that (as I summarize below) it has proven infringement because Edens' Simulator admittedly detects signals from both the leading and serrated trailing edge of its reflective strip. Not surprisingly, Edens argues from the second category of statements that (as I also summarize below) it has proven non-infringement because the tape's serration makes the trailing edge signals mere noise (without a fixed and known width of the tape, the different signals are random), that the trailing edge signals are therefore neither useful nor analyzable, and that the Simulator in fact conducts no analysis with them.

Thus, in its statement of undisputed facts, Golf Tech states that Edens' Simulator "detects and captures changes in state corresponding to both leading and trailing edges because it detects changes in sensor state when the sensor

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[3] I also included the following confusing two sentences:

> Edens argues that unless golf swing analysis is a limitation, those claims merely describe an invention to generate signals, divorced from the context of golf swing analysis. See Def.'s Brief in Opp'n to Pls.' Br[.] at 5 (Docket Item 37) ("[t]he generation of signals, by itself, cannot constitute an invention"). Edens is wrong: generating the discriminating signals by using the reflective tape *is* the invention, not the analysis of the data that follows.

Decision on Claims Construction at 7. When I said that "Edens is wrong," I was referring to the immediately preceding quotation from Edens' brief in parentheses. But syntactically, a reader could properly construe the reference as relating to the preceding sentence, not the parenthetical quotation, and thereby be confused.

signals change state from 'off' to 'on' and when the sensor signals change state from 'on' to 'off.'" Pls.' SMF ¶ 27; see also Edens Dep. 67:10-20, 68:17-24, Apr. 8, 2008 (Ex. A to Decl. of Sean L. Sweeney in Support of Pls.' Mot. for Summ. J.) (Docket Item 49-2). Golf Tech's expert Dr. Goepfert corroborates this assertion, stating that the Simulator's sensors "sens[e] the leading *and trailing* edges of the reflective material as it passes over each of a plurality of sensors." Expert Report of Ian D. Goepfert at 4 (Ex. 2 to Def.'s Objection to Pls.' Mot. for Summ. J.) (Docket Item 61-3) (emphasis added). In response, Edens merely qualifies this statement, saying that because the trailing edge is serrated, "the trailing edge cannot generate *useful* data." Def.'s Opposing SMF ¶ 27 (emphasis added). Edens, therefore, admits that the serrated trailing edge generates signals that are sensed by the Simulator sensors.

But Edens goes on to argue that its Simulator cannot infringe the '211 patent because "it [does] not generate data or signals [from the trailing edge] that can be analyzed or that are useful." Def.'s Objection to Pls.' Mot. for Summ. J. at 4 (Docket Item 61). Edens' expert plainly states that the data generated by the serrated trailing edge is not useful. Decl. of Kie-Bum Eom ¶ 9 (Attached to Def.'s Objection to Pls.' Mot. for Summ. J.) (Docket Item 61-4) (stating "trailing edge data will be 'noise' that has no use"). Edens also quotes Thomas Lawson, a co-inventor of Golf Tech's '211 patent, stating that he would expect that a serrated trailing edge would "generate very little data of any value at all." Lawson Dep. 138:18, June 5, 2008 (Attached to Def.'s Mot. for Summ. J.) (Docket Item 53-11). And Edens notes that the Simulator software does not actually analyze "the spurious, random signals" generated by the serrated

trailing edge and instead "uses only leading edge data." Def.'s Objection to Pls.' Mot. for Summ. J. at 4.

In response, Golf Tech points to no evidence that the Simulator analyzes trailing edge signals or that it actually generates *analyzable* data from the trailing edge. At most, Golf Tech relies on the Lawson statement, Pls.' Reply SMF ¶ 71, which also said that while a serrated trailing edge "would not work as well, . . . it would still work." Lawson Dep. 138:11-13. Lawson, however, prefaced his statement by noting that his conclusion was "speculation." Id. Given that there is no dispute that Edens' expert, Dr. Eom, is a person of ordinary skill in the art, no reasonable juror could find, based merely upon Lawson's speculation, that the trailing edge signal in Eden's Simulator provides useful data. Invitrogen Corp. v. Clontech Labs., Inc., 429 F.3d 1052, 1080 (Fed. Cir. 2005) (holding expert speculation insufficient to defeat summary judgment); see also L & W, Inc. v. Shertech, Inc., 471 F.3d 1311, 1317 (Fed. Cir. 2006) (noting that evidence that does not directly confront an expert's conclusion fails to create a genuine issue of material fact).

In summary, the undisputed record establishes that Edens' Simulator generates a recognized signal from the serrated trailing edge of the reflective tape, but that in its current form it is not, and cannot, be analyzed usefully. So what are the implications for the infringement dispute?

First, as I observed in my Markman Order,[4] neither party then argued the meaning and significance of the following language in claim 29: "analyzing

[4] I stated:

The parties did not argue whether the final clause of claim 29

(continued on next page)

data generated by each of the multiple sensor[s] over which the reflective material has passed." Decision on Claims Construction at 5 n.6. That observation remains true as to the summary judgment proceedings. I therefore deny summary judgment to both parties as to infringement of claim 29.

Claims 31 and 43, however, have no such language, and refer in that respect to only the *generation* of signals from both leading and trailing edges. '211 patent, claim 31, col.9, l.58-61; claim 43, col.10, l.56-58. Claims 38 and 39, dependent on claim 31, mention "computing" club head and swing path angle respectively, but do not state whether this computation uses data generated by the leading edge signals or the trailing edge signals or both. '211 patent, col.10, l.34-37. In other words, claims 38 and 39 incorporate claim 31's requirement of the generation of signals from both leading and trailing edges, but, for the computation they require, they permit the use of data from either edge or both.

However inartful my Markman Order seems in retrospect, what I was trying to say there was that the new invention that obtained a patent was the addition of reflective tape to the golf club head surface to create a light differential at the leading and trailing edge that produced a signal. In ultimately allowing Golf Tech's '211 patent, the patent examiner distinguished an earlier patent, U.S. Patent No. 5,718,639 (the "Bouton patent"), because the

> ("analyzing data generated by each of the multiple sensor[s] over which the reflective material has passed") should be interpreted to require analysis of both the leading and trailing edges. Therefore, I do not address the form of analysis required by that clause. (The only reference to the effect of the final clause of claim 29 in this context was by Edens in a cursory response to one of my questions during the Markman hearing.)

Decision on Claims Construction at 5 n.6.

Bouton patent used reflective tape to cover the entire club head, thereby permitting that device to sense the height of the club head by the intensity of the reflected light. What was new and patentable in the '211 patent, according to the patent examiner, was the addition of leading and trailing edges that could be light-sensed: "[t]he golf swing analysis system works by sensing a reflective material that forms a non-uniformly-reflective surface characterized by leading and trailing edges." U.S. Patent & Trademark Office, Examiner's Amendment (June 14, 2004) (Ex. C3 to Decl. of Scott Houtteman in Support of Def.'s Mot. for Summ. J.) (Docket Item 53-8). My additional language in the Markman Order about how the sensing of those light differentials could be used and analyzed was an attempt to explain the potential significance of this seemingly insignificant addition (a piece of reflective tape). But I was careful (at least I thought I was) to explain that the new invention was not about the *analysis* of the signals, but the *creation* of the signals. Here, Edens' Simulator creates and recognizes both the leading edge and the trailing edge signals. Edens has tried to avoid infringement by not analyzing the trailing edge signals, and by making them not useful (using a reflective tape of unknown width and creating serrations so that width cannot be known). Nevertheless, it continues to generate and recognize the signals.

Since Edens' Simulator indisputably generates and recognizes signals from both the leading and trailing edges, I conclude on summary judgment that it literally infringes claims 31 and 43. Since the Simulator likewise uses the data generated by the leading edge of its tape to compute club head and swing angle, Edens also literally infringes claims 38 and 39.

B. Validity

According to 35 U.S.C. § 282, "a patent is presumed valid, and the party attacking validity has the burden of proving facts supporting a conclusion of invalidity by clear and convincing evidence." RYCO, Inc. v. Ag-Bag Corp., 857 F.2d 1418, 1423 (Fed. Cir. 1988). The burden of proof placed on the challenger "never shifts to the patentee to prove validity," although "once a challenger has presented a prima facie case of invalidity . . . . the patentee would be well advised to introduce evidence sufficient to rebut that of the challenger." Pfizer, Inc. v. Apotex, Inc., 480 F.3d 1348, 1360 (Fed. Cir. 2007) (internal quotation omitted). A court thus "has the responsibility to determine whether the challenger has met its burden by clear and convincing evidence by considering the totality of the evidence, including any rebuttal evidence presented by the patentee." Id.

In its response to Golf Tech's motion for summary judgment and in its own motion for summary judgment, Edens argues that Golf Tech's '211 patent is invalid on four alternative grounds: (i) anticipation, (ii) obviousness, (iii) indefiniteness in the patent specification under 35 U.S.C. § 112, ¶ 2, and (iv) insufficient description in the specification under 35 U.S.C. § 112, ¶ 1. I assess the four grounds in reverse order.

Description. Edens asserts that the '211 patent fails to meet the requirements of the first paragraph of 35 U.S.C. § 112 and is therefore invalid. That statutory provision requires that a patent specification "contain a written description . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the [invention], and shall set

forth the best mode contemplated by the inventor of carrying out his invention." 35 U.S.C. § 112.[5] "[T]he written description requirement involves determining whether the subject matter *defined in the claims* is *described in the specification*." Energizer Holdings, Inc. v. Int'l Trade Comm'n, 275 F. App'x 969, 976-77 (Fed. Cir. 2008) (emphasis added; internal quotation omitted). "Although [the applicant] does not have to describe exactly the subject matter claims, . . . the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991) (internal quotation omitted). According to the Federal Circuit, "if the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1435 (Fed. Cir. 1988).

Edens argues that the '211 patent's specification is defective because it "describes a much narrower invention" than the '211 patent claims. Def.'s Objection to Pls.' Mot. for Summ. J. at 18. Specifically, Edens asserts that the

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[5] Section 112, ¶ 1 contains two requirements: the written description requirement, which is a question of fact, and the enablement requirement, which is a question of law. MOBA, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1319, 1321 (Fed. Cir. 2003); Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). The Federal Circuit has explained:

> The purpose of the "written description" requirement is broader than [the "enablement" requirement] to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.*

Id. (emphasis in original). Edens argues invalidity based on the written description requirement, not the enablement requirement. Def.'s Objection to Pls.' Mot. for Summ. J. at 1-2.

'211 patent claims "broadly define a method of generating signals or data from the leading and trailing edges of tape attached to a golf club head," but that the specification narrowly describes "a method of differentiating artifact from actual golf swing events by analysis of leading and trailing edge data." Id. (emphasis removed).

I disagree. The '211 patent's specification allows persons of ordinary skill in the art to recognize that the inventor invented what is claimed. The subject matter defined in the claims is "a method of analyzing a golf swing . . . sensing the leading and trailing edges of the reflective material as it passes," '211 Patent, claim 29, col.9, l.36-43, "a golf swing analysis method . . . generating at least one signal . . . corresponding to a leading or trailing edge of the reflective material," '211 patent, claim 31, col.9, l.49-60, and "a golf swing analysis . . . characterized by leading and trailing edges coupled to the golf club head . . . [where] a processor . . . generate[s] at least one signal for each transition in light level reflected from the reflective material," '211 patent, claim 43, col.10, l.47-57. This subject matter is sufficiently described in the specification as "determin[ing] the path angle, club head speed, club head angle and club head lateral alignment . . . [and] club head height" where a computer "distinguish[es] the passage of the reflective tape from artifact," '211 patent, col.6-7, not the narrow description Edens attempts to put upon it. I conclude that the specification contains a sufficient description of the invention.

Definiteness. The second paragraph of Section 112 requires that the patent specification "conclude with one or more claims particularly pointing

out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112. The definiteness requirement of Section 112 "serves a public notice function, ensuring that the patent specification adequately notifies the public of the scope of the patentee's right to exclude," Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008), so that, for example, "competitors of the patent owner, can determine whether or not they infringe," Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1340 (Fed. Cir. 2003). Indefiniteness is a question of law. Praxair, Inc., 543 F.3d at 1319.

Edens asserts that the claims in question are fatally indefinite for the following alleged flaws: (i) "[t]he public cannot determine . . . whether or not the claims read on the generation of useless data generated by the trailing edge"; (ii) "there are no computational steps to indicate how 'swing path angle' and 'head angle' are to be computed" in claims 38 and 39; (iii) "there is no indication as to what data is to be used in the computations" in claims 38 and 39, and thus "it remains unclear . . . how much of the data is to be used and whether this data is generated by the leading edge, the trailing edge, or both"; and (iv) the terms "data" and "signal" used in claims 29, 31, and 43 are indefinite because the claims "recite no specific computation at all." Def.'s Mot. for Summ. J. at 14-15 (Docket Item 57); Def.'s Objection to Pls.' Mot. for Summ. J. at 16-17.

"A patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement." Oakley, Inc., 316 F.3d at 1341. As I have held, "the patented invention is not the analysis of a golf swing, but the addition of a reflective strip to the golf club head," Decision on

Claims Construction at 1. What the '211 invention added to the art was generation of light-differentiated signals from the golf club head. To the extent, therefore, that Edens complains that resulting "computations" are unknown, rendering the claims indefinite (arguments (ii), (iii), and (iv)), Edens' argument is unavailing; the invention does not encompass a specific method of analysis or computation but the generation of the signals "[un]limited by what analysis is capable of now or might be expanded to in the future." Id. at 11. Furthermore, argument (i) fails because "claims [are] indefinite only if reasonable efforts at claim construction prove futile." Star Scientific, Inc. v. R.J. Reynolds Tobacco Co., 537 F.3d 1357, 1371 (Fed. Cir. 2008). Here, I construed the claims without undue difficulty. Accordingly, I find that the specification meets the definiteness requirement of Section 112.

Obviousness. 35 U.S.C. § 103(a) provides that "[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). The "critical question . . . is whether the invention as a whole would have been obvious to one of ordinary skill in the art at the time it was made." Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 894 (Fed. Cir. 1984).

Here, as Golf Tech points out, Edens has provided no evidence to support a finding on level of skill in the art. Pls.' Opp'n to Def.'s Mot. for Summ. J. at 7 (Docket Item 58). Edens, however, correctly notes that it may pursue an

obviousness argument on the basis of what is obvious to a layman. See Kloster Speedsteel AB v. Crucible Inc., 793 F.2d 1565, 1574 (Fed. Cir. 1986) (noting that where a court makes "a determination that an invention would have been *obvious* to one of the *lowest* level of skill, i.e., that of a layman," that "particular level of skill finding d[oes] not improperly influence the ultimate conclusion [of obviousness] under § 103" (emphasis in original)), *overruled on other grounds by* Knoff-Bremse Systeme Fuer Nutzfahrzeuge GMbH v. Dana Corp., 383 F.3d 1337 (Fed. Cir. 2004). If an invention is obvious to a layperson, the invention is necessarily obvious to a person of ordinary skill in the art.

A determination of obviousness under 35 U.S.C. § 103 "is a legal question based on factual underpinnings." E.I. DuPont de Nemours & Co., 849 F.2d at 1436. To establish obviousness, the following underlying factual determinations should be considered: (i) "the scope and content of the prior art;" (ii) the "differences between the prior art and the claims at issue;" (iii) "the level of ordinary skill in the pertinent art;" and (iv) objective evidence of non-obviousness, such as "commercial success, long felt but unsolved needs, failure of others, etc." KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1734 (2007) (quoting Graham v. John Deere Co. of Kan. City, 383 U.S. 1, 17-18 (1966)); see also Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 26 (Fed. Cir. 2000) (noting "copying[ ] and unexpected results" are also objective evidence of non-obviousness). Obviousness is "a broad inquiry . . . invit[ing] courts, where appropriate, to look at any secondary considerations that would prove instructive." KSR Int'l Co., 127 S. Ct. at 1739. Because obviousness is a question of patent validity, there is "a presumption of nonobviousness which

the patent challenger must overcome by proving facts with clear and convincing evidence." Perkin-Elmer Corp., 732 F.2d at 89.

Edens argues that the claims of the '211 patent are "invalid because it was obvious at the time of the claimed invention that placing a reflective strip on the bottom of a golf club would generate signals that can be analyzed." Def.'s Mot. for Summ. J. at 11. In support of this argument, Edens refers to the Bouton patent prior art, which the parties agree issued more than one year before the date of application for the '211 patent. Def.'s SMF ¶ 3; Pls.' Opposing SMF ¶ 3. The Bouton patent discloses a golf swing sensor containing an array of photodetectors, where the swing sensor is connected to a computer, and where the user swings a club over the swing sensor at his or her feet in order to determine aspects of the swing such as club face speed and club head direction. Def.'s SMF ¶¶ 9-11, 14-15; Pls.' Opposing SMF ¶¶ 9-11, 14-15.

Edens' argument centers on language in the Bouton patent's written description explaining that for a "thin" shot—a golf swing of excessive height, Def.'s Mot. for Summ. J. at 9 n.1—the invention "requires a substantially uniform reflective surface on the bottom of the club head. As a result, non-uniform club heads must be covered with a reflective tape to present such a uniform reflective surface to the photodetectors." Bouton patent, col.14, l.38-42. Edens asserts that this language would lead a layperson to "recognize that data to detect a golf swing can be generated from the leading edge or the trailing edge of reflective tape." Def.'s Mot. for Summ. J. at 13; Def.'s Objection to Pls.' Mot. for Summ. J. at 15. In particular, Edens argues that since golf club heads are round and since reflective tape has straight edges, any

placement of tape on a club head necessarily results in uncovered portions of the club, thereby creating a non-uniform surface with leading and trailing edges. See Def.'s Mot. for Summ. J. at 13; Def.'s Objection to Pls.' Mot. for Summ. J. at 15.

I disagree. No reasonable jury could find by clear and convincing evidence that requiring a club head to "be covered with a reflective tape" suggests to a layperson the use of leading and trailing edges of non-uniformity on the club head surface. Rather, for the Bouton patent the club head is covered in order to capture information from the entire surface. Moreover, the Bouton patent suggests the addition of tape in order to amplify reflectivity of the surface so that the sensors can perceive the club at excessive height. The '211 patent invention, on the other hand, uses reflective tape to generate light-differentiated signals so as to sense leading and trailing edges. Those signals then can be analyzed so as to calculate speed and other characteristics of a golf swing—not just sense the surface of the club if it is positioned too high above the sensor pad. I conclude that Edens lacks clear and convincing evidence that it would have been obvious to a layperson to extend the Bouton patent's teaching to use a strip of tape to create a *non-uniformly* reflective surface in order to generate data for club speed, path, angle, *and* club height for any swing generally, not just a "thin" shot where intensification of the reflectivity is necessary for the Bouton patent. As Edens offers no evidence to support a conclusion that the '211 patent invention would be obvious to "a person having ordinary skill in the art," 35 U.S.C. § 103(a), and does not contend that "the prior art itself reflects an appropriate [skill] level," Union Carbide Corp. v. Am.

Can Co., 724 F.2d 1567, 1573 (Fed. Cir. 1984), I conclude that Edens fails to establish its obviousness defense by clear and convincing evidence.

Anticipation. To show that the patent is invalid as anticipated under 35 U.S.C. § 102,[6] Edens as the infringer must show "the disclosure in a single piece of prior art of each and every limitation of the claimed invention." Apple Computer, Inc., 234 F.3d at 20. As it is an argument on invalidity, Edens bears the burden of proving anticipation by clear and convincing evidence. Glaxo Group Ltd. v. Apotex, Inc., 376 F.3d 1339, 1348 (Fed. Cir. 2004). "This burden is especially difficult when," as here, "the infringer attempts to rely on prior art that was before the patent examiner during prosecution." Id. Whether prior art "is anticipating is a question of fact."[7] Apple Computer, Inc., 234 F.3d at 20.

Edens argues that all of the claims at issue (claims 29, 31, 38, 39 and 43) are invalid because they are anticipated by the Bouton patent.[8] The dispute is whether the Bouton patent discloses a non-uniformly-reflective surface characterized by leading and trailing edges. See Def.'s Mot. for Summ. J. at 6-9; Pls.' Opp'n to Def.'s Mot. for Summ. J. at 5-6.

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[6] Section 102 provides that "[a] person shall be entitled to a patent unless--(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." 35 U.S.C. § 102.

[7] "Although anticipation is a question of fact, it still may be decided on summary judgment if the record reveals no genuine dispute of material fact," such that "no reasonable jury could find that the patent is not anticipated." Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1327 (Fed. Cir. 2001).

[8] As noted above, anticipation requires "the disclosure in a single piece of prior art of each and every limitation of the claimed invention." Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14, 20 (Fed. Cir. 2000). Because I conclude that Edens has failed to prove the invalidity of claim 31 by anticipation, I also conclude that claim 38 and claim 39, which are dependent on claim 31, are not anticipated by the Bouton patent.

As I said above, no reasonable jury could find that requiring a club head to "be covered with a reflective tape," Bouton patent, col.14, l.38-42, suggests leading and trailing edges on the club head surface. Furthermore, the Bouton patent expressly refers to the use of tape to create a *uniform* surface. Bouton patent, col.14 l.38-42. The '211 patent uses tape to create a *non-uniform* surface, an element expressly required by the examiner in prosecution of the '211 patent. U.S. Patent & Trademark Office, Examiner's Amendment (June 14, 2004). Given that Edens' burden of proving invalidity by clear and convincing evidence is "especially difficult" because the Bouton patent was before the patent examiner during prosecution, Glaxo Group Ltd., 376 F.3d at 1348, I conclude that Edens lacks clear and convincing evidence to show that the Bouton patent inherently discloses "each and every limitation" of Golf Tech's '211 patent.

In sum, Edens fails to establish invalidity of the '211 patent by clear and convincing evidence on all its asserted grounds.

CONCLUSION

For the foregoing reasons, I **DENY** both parties' motions for summary judgment on claim 29 infringement. I **GRANT** Golf Tech's motion for summary judgment as to liability for infringement on the other claims and on validity as to all claims. I **DENY** Edens' motion for summary judgment on validity and infringement.

As a result, the case will proceed as to claim 29 only.

SO ORDERED.

DATED THIS 6TH DAY OF JANUARY, 2009

/S/D. BROCK HORNBY
D. BROCK HORNBY
UNITED STATES DISTRICT JUDGE