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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* HIDEO WATANABE

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Appeal 2011-004113  
Application 11/950,513  
Technology Center 3700

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Before EDWARD A. BROWN, ANNETTE R. REIMERS and  
RICHARD E. RICE, *Administrative Patent Judges*.

RICE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Hideo Watanabe (Appellant) seeks our review under 35 U.S.C. § 134 of the Examiner's rejection of claims 1, 3-8, 10 and 11. Claims 2 and 9 have been canceled. An oral hearing was held February 11, 2013. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

*The Claimed Subject Matter*

The claimed subject matter “relates to a multi-piece golf ball having at least a three-layer construction composed of a core, an intermediate layer, and a cover” and, more specifically, “to a golf ball having a reduced distance of travel compared with official balls in current use.” Spec., para. [0001]. Claim 1 is the only independent claim. Claim 1, reproduced below with italics for emphasis, is representative of the subject matter on appeal:

1. A golf ball comprising a resilient core made of rubber, a cover of one or more layers encasing the core, and at least one intermediate layer disposed between the core and the cover, wherein the cover is made primarily of polyurethane, the intermediate layer is made primarily of ionomer, and *the core has a surface hardness which is higher than the material hardnesses of the cover and the intermediate layer,*  
wherein a diameter of the core ranges from 35 mm to 40 mm, the surface hardness of the core ranges from 45 to 60 shore D, and the core center hardness ranges from 25 to 50 shore D,  
*wherein a difference between the cover hardness and the core surface hardness expressed in Shore D hardness units ranges from -12 to -2.*

*The Rejections*

The following Examiner’s rejections under 35 U.S.C. § 103(a) are before us for review:

- (1) claims 1 and 3-8 as unpatentable over Higuchi (US 2004/0029650 A1, pub. Feb. 12, 2004);
- (2) claim 10 as unpatentable over Higuchi and Saito (US 4,919,434, iss. Apr. 24, 1990); and
- (3) claim 11 as unpatentable over Higuchi and Watanabe (US 6,663,507 B1, iss. Dec. 16, 2003).

OPINION

*Rejection (1) – Claims 1 and 3-8*

Claim 1 calls for, *inter alia*, the difference between the cover hardness and the core surface hardness to be in the range -2 to -12 Shore D. With respect to this limitation, the Examiner computes the difference between the cover hardness and the core surface hardness for example golf balls listed in Higuchi's Table 4. Ans. 6. In particular, the Examiner computes a difference range of -2 to -27 Shore D using Higuchi's disclosed range of core surface hardness values of from 55 Shore D to 80 Shore D (*see* Higuchi, para. [0072]) and the cover layer hardness of 53 Shore D listed for Examples 4 and 5 in Table 4.<sup>1</sup> *Id.* In this computation, the Examiner subtracts the minimum value of the disclosed range of core surface hardness (55 Shore D) from the cover hardness (53 Shore D) of Examples 4 and 5 to obtain one end of the range (-2 Shore D); and the Examiner subtracts the maximum value of the disclosed range of core surface hardness (80 Shore D) from the cover hardness (53 Shore D) of Examples 4 and 5 to obtain the other end of the range (-27 Shore D). *Id.* Based on this computation, the Examiner concludes that "Appellant's [claimed] range from -2 to -12 lies inside the range -2 to -27 for [E]xamples 4-5 (Higuchi)," to create a prima facie case of obviousness. *Id.* The Examiner also contends:

Higuchi discloses the core surface hardness is from 55 [to] 80 Shore D and the inner cover layer hardness is from 50 to 80 Shore D. Comparing the minimum values of each range it is clear the core surface hardness is intended to be higher than the inner cover layer hardness. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to

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<sup>1</sup> As noted by the Examiner (Ans. 6), Table 4 does not list the core surface hardness of the example golf balls.

discover the optimum or workable ranges by routine experimentation.”

*Id.* at 7 (quoting *In re Aller*, 220 F.2d 454, 456 (CCPA 1955)).

Appellant’s position is that “there is no logical basis for optimizing the **broad ranges** disclosed in Higuchi to arrive at the recited difference range.” App. Br. 9. Appellant argues that “Higuchi fails to recognize the recited ‘difference’ as a *result effective variable*, and therefore, fails to render the recited ‘difference’ obvious” (*id.* at 10, emphasis added), and further that

Higuchi fails to disclose, and the Examiner fails to provide any basis for, optimizing the disclosed ranges to arrive at the recited difference range (-12 to -2). Most notably, Higuchi fails to identify this difference as a *result effective variable*. See MPEP §2144.05 (II)(B) (“A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.[”]). In fact, Higuchi fails to even acknowledge or associate any value with this difference value.

*Id.* at 12 (emphasis added); *see also* Reply Br. 6. Acknowledging that Higuchi discloses a core surface hardness range of 55-80 Shore D and an outer cover layer hardness range of 35-60 Shore D, Appellant argues that the disclosed ranges do not show that the core surface hardness is higher than the outer cover layer hardness, because the ranges “also disclose potential combinations where the core surface hardness is *lower* than the outer cover layer hardness . . . .” App. Br. 11.

The Examiner does not adequately address Appellant’s argument that Higuchi fails to recognize the recited difference between the cover hardness

and the core surface hardness as a result-effective variable. *See* App. Br. 10 and 12. Our reviewing court has stated the applicable legal principles as follows:

“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *Aller*, 220 F.2d at 456. This rule is limited to cases in which the optimized variable is a “result-effective variable.” *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977); *see* [*In re* ]*Boesch*, 617 F.2d [272,] 276 [(CCPA 1980)] (“[D]iscovery of an optimum value of a result effective variable ... is ordinarily within the skill of the art.”).

*In re Applied Materials, Inc.*, 692 F.3d 1289, 1295 (Fed. Cir. 2012).

Higuchi’s objective is a multi-piece solid golf ball having “a good, soft feel when hit with a golf club and an excellent spin performance that enables the ball to travel further when played.” Higuchi, para. [0012]. The Examiner has not pointed us to a sufficiently clear disclosure in Higuchi that “good, soft feel” or “excellent spin performance” is a function of the difference between the cover hardness and the core surface hardness. *See In re Antonie*, 559 F.2d 618, 620 (CCPA 1977) (finding no disclosure of the relationship between the recited variable and the result in the prior art). As Appellant argues, Higuchi’s disclosed ranges of core surface hardness (55-80 Shore D) and outer cover layer hardness (35-60 Shore D) include potential combinations where the core surface hardness is lower, not just higher, than the outer cover layer hardness. As such, there is insufficient evidence that the recited difference between the cover hardness and the core surface hardness was recognized in the prior art as a result-effective variable.

Appeal 2011-004113  
Application 11/950,513

Accordingly, we do not sustain the Examiner's rejection of claim 1, and dependent claims 3-8, under 35 U.S.C. § 103(a) as unpatentable over Higuchi.

*Rejections (2) and (3) – Claims 10 and 11*

Claims 10 and 11 depend from claim 1. As to claims 10 and 11, the Examiner again relies on Higuchi to satisfy the limitations of claim 1. *See* Ans. 4-5 and 8. Thus, for the reasons discussed *supra* with respect to claim 1, we do not sustain the Examiner's rejections of claims 10 and 11 under 35 U.S.C. § 103(a) as unpatentable over Higuchi and Saito or Watanabe.

DECISION

We reverse the rejections of claims 1, 3-8, 10 and 11.

REVERSED

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