

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte MICHAEL J. SULLIVAN

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Appeal No. 2005-0806  
Application No. 10/179,812<sup>1</sup>

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ON BRIEF

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Before GARRIS, NASE, and CRAWFORD, Administrative Patent Judges.  
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection (mailed March 2, 2004) of claims 1 to 13, which are all of the claims pending in this application.<sup>2</sup>

We AFFIRM.

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<sup>1</sup> According to the appellant, this application is a continuation of Application No. 09/121,628, filed July 23, 1998, which is a continuation of Application No. 08/815,556, filed March 12, 1997.

<sup>2</sup> Claims 6 and 9 were amended subsequent to the final rejection. This amendment overcame the rejection of claims 6 to 9 under 35 U.S.C. § 101.

### BACKGROUND

The appellant's invention relates to improved golf balls comprising multi-layer covers which have a hard inner layer and a relatively soft outer layer (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

Claims 1 to 13 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 to 8, 12 and 13 of copending Application No. 08/815,556.

Claims 1 to 13 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 to 14 of U.S. Patent No. 6,623,381<sup>3</sup>.

Claims 1 to 5 and 9 to 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nesbitt<sup>4</sup> in view of Horiuchi<sup>5</sup>.

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<sup>3</sup> Issued September 23, 2003.

<sup>4</sup> U.S. Patent No. 4,431,193 which issued February 14, 1984 to Nesbitt.

<sup>5</sup> U.S. Patent No. 5,222,739 which issued June 29, 1993 to Horiuchi et al. (Horiuchi).

Claims 1 to 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and Sullivan<sup>6</sup>.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer (mailed August 10, 2004) for the examiner's complete reasoning in support of the rejections, and to the brief (filed July 16, 2004) for the appellant's arguments thereagainst.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

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<sup>6</sup> U.S. Patent No. 4,884,814 which issued December 5, 1989 to Sullivan.

### **The provisional obviousness-type double patenting rejection**

We will not sustain the rejection of claims 1 to 13 under the judicially created doctrine of obviousness-type double patenting over claims 1 to 8, 12 and 13 of copending Application No. 08/815,556. Application No. 08/815,556 became abandoned on August 25, 2004. Since no patent can issue on an abandoned application, there is no basis for a provisional obviousness-type double patenting rejection.

### **The obviousness-type double patenting rejection**

Claims 1 to 13 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1 to 14 of U.S. Patent No. 6,623,381.

In the final rejection (p. 4) and the answer (p. 5), the examiner set forth his determination that claims 1 to 13 are not patentably distinct from claims 1 to 14 of U.S. Patent No. 6,623,381.

The appellant has not specifically contested this rejection in the brief. Since the appellant has not asserted any error that would cause this rejection of claims 1 to 13 to be in error, we summarily sustain the rejection of claims 1 to 13 under the judicially created doctrine of obviousness-type double patenting over claims 1 to 14 of U.S. Patent No. 6,623,381.

**The 35 U.S.C. § 103 rejection of claims 1 to 5 and 9 to 13**

We sustain the rejection of claims 1 to 5 and 9 to 13 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi.

Claims 1, 9 and 10 read as follows:

1. A golf ball comprising:
  - a core;
  - an inner cover layer molded on said core, said inner cover layer comprising a high acid ionomer including at least 16% by weight of alpha, beta-unsaturated carboxylic acid; and
  - an outer cover layer molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric low flexural modulus ionomer resin.
  
9. A multi-layer golf ball comprising:
  - a spherical core;
  - an inner cover layer molded over said spherical core, said inner cover layer comprising an ionomeric resin including at least 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; [and]
  - an outer cover layer molded over said spherical intermediate ball<sup>[7]</sup> to form a multi-layer golf ball, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.
  
10. A multi-layer golf ball comprising:
  - a spherical core;
  - an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer comprising an ionomeric resin including about 17% to about 25% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi; [and]

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<sup>7</sup> There is no antecedent basis for "said spherical intermediate ball."

an outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, the outer layer comprising an ionomeric material, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.

Nesbitt's invention relates to a golf ball having a multilayer or two-ply cover construction for a solid resilient center or core wherein the multilayer cover construction involves two stage molded cover compositions over a solid center or core of resilient polymeric material wherein an increased coefficient of restitution is attained and wherein the "feel" or playing characteristics are attained similar to those derived from a balata covered golf ball. The golf ball has a solid center or core 12 of resilient polymeric or similar material covered by a first layer or ply 14 of molded hard, highly flexural modulus resinous material or of cellular or foam composition which has a high coefficient of restitution. The first layer or ply is provided with a second or cover layer 16 of a comparatively soft, low flexural modulus resinous material or of cellular or foam composition molded over the first layer and core or center assembly. Nesbitt teaches (column 1, lines 57-60) that "[t]hrough the use of the first ply or layer of hard, high flexural modulus resinous material on the core or center, a maximum coefficient of restitution may be attained." The resinous material for the first ply or layer 14 is a resinous material such as type 1605 Surlyn<sup>®</sup> which is a hard, high flexural modulus resin which produces a substantial gain of coefficient of restitution over the coefficient of restitution of the core or center. The outer layer, ply, lamination or cover 16 is a

resinous material such as type 1855 Surlyn<sup>®</sup> which is a comparatively soft, low flexural modulus resinous material.

Horiuchi's invention relates to a golf ball having excellent impact resilience and flying performance, of which the cover is formed from an ionomer resin which contains an alpha, beta-ethylenic unsaturated carboxylic acid in a larger amount than conventional ionomer resins. In the background of the invention, Horiuchi provides that it is known to compose a golf ball of a core and a cover covering the core wherein the ionomer resin which is used as the cover of the golf balls contain alpha, beta-ethylenic unsaturated carboxylic acid in an amount of less than 15% by weight. In the summary of the invention, Horiuchi states that

It has been surprisingly found that a carboxyl-rich ionomer resin which contains 16 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid significantly improves the properties of the golf balls, such as impact resilience and flying performance. Thus, the present invention provides a golf ball which comprises a core and a cover covering the core, wherein the cover contains at least 20% by weight of a carboxyl-rich ionomer resin prepared by neutralizing 15 to 80 mol % of carboxylic acid groups of an olefinic copolymer containing 16 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid with monovalent or divalent metal ions.

Horiuchi then provides (column 1, lines 50-59) that

an amount of the alpha, beta-ethylenic unsaturated carboxylic acid is limited to 16 to 30% by weight, preferably 20 to 30% by weight, based on the total monomer weight. Thus, the balance of the monomer is the alpha-olefin. If the amount of the alpha, beta-ethylenic unsaturated carboxylic acid is less than 16%

by weight, a stiffness modulus is low and an impact resilience is low, thus resulting in poor flying performance.

Horiuchi also teaches (column 2, lines 16-18) that it is preferred that the carboxyl-rich ionomer resin of the present invention has a stiffness modulus of 3,000 to 6,000 Kg/cm<sup>2</sup> which converts to about 42,670 to 85,340 psi.

In addition to the teachings of Nesbitt and Horiuchi, the examiner cited additional references in the parent application (Application No. 09/121,628) to interpret the teachings of Nesbitt particularly to those skilled in the art at the relevant time. See Studiengesellschaft Kohle v. Dart Indus., Inc., 726 F.2d 724, 726-727, 220 USPQ 841, 842-843 (Fed. Cir. 1984). In particular, the examiner cited (answer in parent Application No. 09/121,628, p. 4) (1) U.S. Patent No. 5,061,757 to Warner for the teaching that type 1855 Surlyn<sup>®</sup> is a zinc ionomer of an ethylene/acrylic acid copolymer having 10% acid; (2) U.S. Patent No. 4,187,358 to Kyo et al. for the teaching that type 1855 Surlyn<sup>®</sup> has a flex modulus of 640 Kg/cm<sup>2</sup> which converts to about 9,000 psi; and (3) U.S. Patent No. 5,387,470 to Parnell et al. for the teaching that type 1605 Surlyn<sup>®</sup> is a sodium ionomer of ethylene/methacrylic acid copolymer having 15% acid.

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Based on our analysis and review of Nesbitt and claims 1, 9 and 10, it is our opinion that the differences are: (1) the inner cover layer comprising a high acid ionomer including at least 16% by weight of alpha, beta-unsaturated carboxylic acid as recited in claim 1; (2) the inner cover layer comprising an ionomeric resin including at least 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi as recited in claim 9; and (3) the inner cover layer comprising an ionomeric resin including about 17% to about 25% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi as recited in claim 10.

In applying the test for obviousness,<sup>8</sup> we reach the conclusion that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have modified the resinous material used for the inner cover of Nesbitt's golf ball to

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<sup>8</sup> The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

be an ionomer resin containing about 20% alpha, beta-ethylenic unsaturated carboxylic acid as suggested by the teachings of Horiuchi to improve the impact resilience of the inner cover and thus increase the coefficient of restitution of the inner cover and the golf ball.

The appellant argues that there is no motivation, absent the use of impermissible hindsight, for a person of ordinary skill in the art to have modified the inner cover 14 of Nesbitt's golf ball from the teachings of Horiuchi and that the teachings of Horiuchi would have made it obvious to have modified the outer cover 16 of Nesbitt's golf ball. We do not agree. Nesbitt clearly teaches (column 2, lines 40-65) that the inner cover 14 of Nesbitt's golf ball is a hard, high flexural modulus resin which "is employed to increase the coefficient of restitution in order to attain or approach the maximum initial velocity for the golf ball" and that the outer cover 16 of Nesbitt's golf ball is a soft low flexural modulus resin which "provides little or no gain in the coefficient of restitution." In our view, Horiuchi's teaching to use a carboxyl-rich ionomer resin which contains preferably 20 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid to significantly improve the properties of a golf ball, such as impact resilience and flying performance, would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified the cover layer of Nesbitt's golf ball

that Nesbitt teaches should have the maximum coefficient of restitution (i.e., inner cover 14).

With regard to claims 9 and 10, the recited inner cover layer having a modulus of from about 15,000 to about 70,000 psi and the outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi is met by Nesbitt's inner cover 14 and outer cover 16. Moreover, the limitation that the inner cover layer comprising an ionomeric resin including about 17% to about 25% by weight of an alpha, beta-unsaturated carboxylic acid is met by the combined teachings of the applied prior art for the reasons set forth above. Lastly, the recited inner cover layer having a modulus of from about 15,000 to about 70,000 psi is met by Horiuchi's cover material when such material is substituted for the inner cover layer of Nesbitt's golf ball.

In the brief (p. 9), the appellant has referenced the Board decision (mailed September 17, 2001) in an earlier appeal in parent Application No. 08/815,556. The appellant also makes reference to the Board decision (mailed April 25, 2002) in another appeal in parent Application No. 09/121,628. In addition, prior to the filing of the brief in this application, this panel of the Board rendered another decision (mailed June 24, 2004) in another appeal in parent Application No. 08/815,556. We have reviewed the three Board decisions and note that our decision herein is in harmony with our decisions

of April 25, 2002 in Application No. 09/121,628 and June 24, 2004 in Application No. 08/815,556.<sup>9</sup> As to the September 17, 2001 Board decision in parent Application No. 08/815,556, we note that the issue in that appeal was whether or not the claims under appeal would have been obvious at the time the invention was made to a person of ordinary skill in the art from the teachings of Nesbitt and U.S. Patent No. 5,068,151 to Nakamura. Thus, the issues in this appeal are different than the issue decided in that appeal.

For the reasons set forth above, the decision of the examiner to reject claims 1, 9 and 10 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi is affirmed. The decision of the examiner to reject claims 2 to 5 and 11 to 13 under 35 U.S.C. § 103 is also affirmed since the appellant has not challenged the rejection of these dependent claims with any reasonable specificity, thereby allowing claims 2 to 5 and 11 to 13 to fall with claims 1, 9 and 10 (see In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987)).

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<sup>9</sup> Our decision herein is also in harmony with our decision rendered in Application No. 10/047,626.

**The 35 U.S.C. § 103 rejection of claims 1 to 13**

We sustain the rejection of claims 1 to 13 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and Sullivan. With respect to claims 1 to 5 and 9 to 13, the rejection is sustained for the reasons set forth above.<sup>10</sup>

Claim 6 reads as follows:

A golf ball according to claim 1 wherein the outer layer comprises a low flexural modulus ionomer resin which includes a blend of a hard high modulus ionomer with a soft low modulus ionomer.

Based on our analysis and review of Nesbitt and claim 6, it is our opinion that the differences are (1) the inner cover layer comprising a high acid ionomer including at least 16% by weight of alpha, beta-unsaturated carboxylic acid as recited in claim 1; and (2) the outer layer comprising a blend of a hard high modulus ionomer with a soft low modulus ionomer as recited in claim 6.

Sullivan's invention relates to golf ball technology, and more particularly, golf ball cover technology. Sullivan teaches that ionomers have been widely used as golf ball cover materials for the past 15 years and that while these ionomers are very durable,

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<sup>10</sup> Thus, we regard the examiner's application of the teachings of Sullivan to be mere surplusage with regard to the rejection of these claims.

they have a deficiency as a golf ball cover material in that they tend to be hard. This invention is concerned with a mixture of a hard ionomer with a soft ionomer in order to produce a golf ball cover composition wherein the cover is softer than the prior art ionomer covers. Sullivan states that a golf ball covered in accordance with his invention is durable and a skilled golfer can impart back spin to the ball in play.

Sullivan teaches that (1) for over a decade the trade attempted to solve the problem associated with Surlyn<sup>®</sup> covered golf balls by the blending of hard Surlyn<sup>®</sup> with a soft Surlyn<sup>®</sup>; (2) until his invention, the blending of a hard Surlyn<sup>®</sup> and a soft Surlyn<sup>®</sup> was totally unsatisfactory in the production of a commercially viable golf ball; and (3) in accordance with his invention, it has been found that when a hard Surlyn<sup>®</sup> or a mixture of hard Surlyn<sup>®</sup> resins are blended with a soft Surlyn<sup>®</sup> which is a terpolymer of methacrylic acid and iso- or n-butylacrylate partially neutralized with a metal salt, a superior golf ball cover formulation is produced. Sullivan provides that the resulting cover composition of his invention is intermediate in softness between a balata covered golf ball and a hard Surlyn<sup>®</sup> covered golf ball, to such a degree that an adequate back spin can be imparted to the ball by a skilled golfer. Further, the resulting golf ball exhibits a degree of cut resistance which is adequate for play and which exhibits outstanding distance properties which is exhibited by its coefficient of restitution and/or initial velocity.

The high modulus ionomer taught by Sullivan has a flexural modulus of from about 30,000 to 55,000 psi and a hardness of from about 60 to 66 on the Shore D scale. The hard Surlyn<sup>®</sup> resins used in this invention are ionic copolymers which are the sodium or zinc salts of the reaction product of an olefin having from 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms. The low modulus ionomer taught by Sullivan has a modulus of from about 3,000 to about 7,000 psi and a hardness of from about 25 to about 40 as measured on the Shore D scale. The low modulus ionomer may be a sodium or zinc salt of a terpolymer of an olefin having from 2 to 8 carbon atoms, an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms and an unsaturated monomer of the acrylate ester class having from 2 to 22 carbon atoms.

In applying the above-noted test for obviousness, we reach the conclusion that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have modified (1) the resinous material used for the inner cover of Nesbitt's golf ball to be an ionomer resin containing about 20% alpha, beta-ethylenic unsaturated carboxylic acid as suggested by the teachings of Horiuchi to improve the impact resilience of the inner cover and thus increase the coefficient of restitution of the inner cover and the golf ball for the reasons set forth above with respect to claims 1, 9 and 10; and (2) the resinous material used for the outer cover of Nesbitt's golf ball to be

a blend of a hard high modulus ionomer with a soft low modulus ionomer as suggested by the teachings of Sullivan to improve the impact resilience of the outer cover and thus increase the coefficient of restitution of the golf ball while maintaining the ability of a skilled golfer to impart adequate back spin to the golf ball.

The appellant argues (brief, p. 11) that (1) Sullivan does not remedy the previously discussed deficiencies of Nesbitt and Horiuchi; and (2) there is no motivation to combine Sullivan with Nesbitt and Horiuchi to arrive at the golf ball of claim 6. These arguments are unpersuasive for the following two reasons. First, as explained previously we see no deficiency in the teachings of Nesbitt and Horiuchi with respect to claim 1 on appeal. Second, we believe there is motivation in the applied prior art, taken as a whole, that would have suggested the limitations set forth in claim 6 for the reasons set forth in the previous paragraph.

For the reasons set forth above, the decision of the examiner to reject claim 6 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and Sullivan is affirmed. The decision of the examiner to reject claims 7 and 8 under 35 U.S.C. § 103 is also affirmed since the appellant has not challenged the rejection of these claims with any reasonable specificity, thereby allowing claims 7 and 8 to fall with claim 6 (see In re Nielson, supra).

### CONCLUSION

To summarize, the decision of the examiner to provisionally reject claims 1 to 13 under the judicially created doctrine of obviousness-type double patenting over claims 1 to 8, 12 and 13 of copending Application No. 08/815,556 is reversed; the decision of the examiner to reject claims 1 to 13 under the judicially created doctrine of obviousness-type double patenting over claims 1 to 14 of U.S. Patent No. 6,623,381 is affirmed; the decision of the examiner to reject claims 1 to 5 and 9 to 13 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi is affirmed; and the decision of the examiner to reject claims 1 to 13 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and Sullivan is affirmed.

Since at least one rejection of each of the appealed claims has been affirmed, the decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal  
may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS  
Administrative Patent Judge

JEFFREY V. NASE  
Administrative Patent Judge

MURRIEL E. CRAWFORD  
Administrative Patent Judge

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