

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ATSUSHI NANBA

Appeal 2007-3544
Application 11/101,549
Technology Center 1700

Decided: January 30, 2008

Before EDWARD C. KIMLIN, PETER F. KRATZ, and LINDA M. GAUDETTE, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Examiner's final rejection of claims 1-3, 5-9, and 11, the only claims that remain pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 6. Oral arguments were presented on January 24, 2008.

Appellants' invention is directed to a cross-linked rubber molding for golf balls wherein a spherically molded and cross-linked rubber composition is impregnated with a rubber compounding chemical and a reaction is induced that increases the surface hardness of the molding, and to a method of making the molding. The rubber compounding chemical penetrates from the surface of the molding to a depth of at least 10mm toward the center thereof. Claims 1 and 7 are illustrative and reproduced below:

1. A crosslinked rubber molding for golf balls obtained by spherically molding and crosslinking a rubber composition comprising a base rubber, a co-crosslinking agent and a crosslinking agent, then impregnating the crosslinked rubber molding with a rubber compounding chemical and inducing a chemical reaction,

wherein the rubber compounding chemical is a polymerizable monomer and/or a crosslinking agent,

wherein the rubber compounding chemical-impregnated crosslinked molding has (i) a higher surface hardness than the crosslinked molding prior to impregnation, (ii) a center hardness of from 30 to 80 in JIS-C hardness, and (iii) a surface hardness of from at least 75 in JIS-C to not more than 85 in Shore D, and

wherein the rubber compounding chemical is allowed to penetrate from the surface of the crosslinked molding to a depth of at least 10 mm toward the center.

7. A method of manufacturing a crosslinked rubber molding for golf balls, which method is characterized by comprising the steps of: molding and crosslinking a rubber composition which includes a base rubber, a co-crosslinking agent and a crosslinking agent; impregnating a rubber compounding chemical into one or more layer of the spherical crosslinked molding; then heating the rubber compounding chemical-impregnated crosslinked molding at not less than 100° C,

wherein the rubber compounding chemical is a polymerizable monomer and/or a crosslinking agent,

wherein the rubber compounding chemical-impregnated crosslinked molding has (i) a center hardness of from 30 to 80 in JIS-C hardness and (ii) a surface hardness of from at least 75 in JIS-C to not more than 85 in Shore D, and

wherein the rubber compounding chemical is allowed to penetrate from the surface of the crosslinked molding to a depth of at least 10 mm toward the center.

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Ichikawa	6,620,061 B1	Sep. 16, 2003
Hogge	US 2003/0236135 A1	Dec. 25, 2003
Kataoka	US 2004/0102580 A1	May 27, 2004

Thain, Science and Golf IV, *Proceedings of the World Scientific Congress of Golf*, Chapter 28, Jul. 2002.

Claims 1, 3, 5-9, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hogge.¹

¹ In the statement of rejection, the Examiner does not list the three other references besides Hogge, which are cited as evidence in the Answer (Ans. 2-3, Item 8). However, Thain is discussed later on in the Answer and is seemingly used in combination with Hogge as the prior art being relied upon by the Examiner (Ans. 4-5). Moreover, Appellants address Thain in the Briefs. Accordingly, we consider Thain as part of the evidence relied upon by the Examiner in rejecting the claims; however, we decline to consider the other two cited references that are presented as evidence in the Answer as being part of the prior art that is relied upon by the Examiner in rejecting the appealed claims as the Examiner makes no mention of these latter references in the stated rejection.

We reverse the Examiner's obviousness rejection for substantially the reasons set forth in the Appeal Brief and the Reply Brief. All of the claims on appeal require either a crosslinked rubber molding made by a process wherein a surface hardness increasing reaction is induced in a spherically molded and crosslinked rubber composition using an impregnated rubber compounding chemical that penetrates from the surface to a depth of at least 10mm toward the center of the molding or a method of making such a molding. However, the Examiner has not fairly established how Hogge suggests a rubber molding resulting from having a rubber compounding chemical therein that was left to penetrate to a 10mm or greater depth toward the center of the molding and which impregnated molding is reacted and results in a higher surface hardness for the molding or the process of making same, as here claimed.

In this regard, we note that Hogge discloses that the outer .001 to .050 inches (about 0.254 mm to about 1.016mm)² of a core has hardness gradients owing to the curing of these first several mils of the core, running from the surface thereof, using infrared radiation (Abstract and ¶¶ 0021, 0022, 0028, 0029, and 0039). In maintaining the obviousness of the here claimed penetration depth requirement for the claimed product, the Examiner maintains that one of ordinary skill in the art would have determined such a penetration depth as a matter of optimization (Ans. 6) and that "one of ordinary skill in the art would recognize the penetration depth would be variable, adjustable ..." (Ans. 7).

² See page 7 of the Answer wherein the Examiner provides the metric equivalent units of measurement.

However, we agree with Appellants that to the extent the claimed penetration of rubber compounding chemicals would have been obvious to employ in Hogge³, such penetration would have been directed to a depth somewhat near or about the .050 inch (1.016mm) depth that Hogge teaches as a preferred maximum for the IR hardening employed in Hogge, not a depth about 10 times greater than the maximum depth presented by Hogge, as is here claimed. While we agree with the Examiner that it is generally a matter of obviousness for the skilled artisan to determine the optimum value within a disclosed range, *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980), it would not have been obvious for one of ordinary skill in the art to find an optimum value that is far outside the range taught by the prior art. *See In re Sebek*, 465 F.2d 904, 907 (CCPA 1972). Consequently, we find that the Examiner has not established a *prima facie* case of obviousness for the claimed invention on the asserted optimization theory.

It follows that, on this record, we reverse the Examiner's obviousness rejection.

³ We need not address the Examiner's additional application of Thain (also see footnote 1) to establish the obviousness of employing a polymerizable monomer and/or a crosslinking agent as an impregnating chemical in Hogge (Ans. 4) because we agree with Appellants' position that the Examiner's rejection suffers from the lack of a presentation of a *prima facie* case as to the obviousness of the claimed depth of penetration of the rubber compounding chemical.

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CONCLUSION

The decision of the Examiner to reject claims 1, 3, 5-9, and 11 under 35 U.S.C. § 103(a) as being unpatentable over Hogge is reversed.

REVERSED

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