



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
**United States Patent and Trademark Office**  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/353,280	11/16/2016	Hironori TAKIHARA	3673-0577PUS1	7796
2292	7590	06/22/2020	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH, LLP			SIMMS JR, JOHN ELLIOTT	
8110 Gatehouse Road			ART UNIT	
Suite 100 East			PAPER NUMBER	
Falls Church, VA 22042-1248			3711	
			NOTIFICATION DATE	
			DELIVERY MODE	
			06/22/2020	
			ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* HIRONORI TAKIHARA,  
KOHEI MIMURA, KOSUKE TACHIBANA, and  
KAZUYA KAMINO

---

Appeal 2019-006559  
Application 15/353,280  
Technology Center 3700

---

Before CHARLES N. GREENHUT, MICHAEL L. HOELTER, and  
ANNETTE R. REIMERS, *Administrative Patent Judges*.

GREENHUT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–7 and 10–12. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Sumitomo Rubber Industries, Ltd. Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to a golf ball having dimples. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A golf ball comprising a core, a mid layer positioned outside the core, and a cover positioned outside the mid layer, wherein the golf ball has a plurality of dimples on a surface thereof, the dimples have a plurality of different diameters,

[(1)<sup>2</sup>] a percentage  $S_o$  of a sum of areas of the dimples relative to a surface area of a phantom sphere of the golf ball is equal to or greater than 81.0%,

[(2)] a percentage  $R_s$  of a number of the dimples each having a diameter of equal to or greater than 9.60% but equal to or less than 10.37%, of a diameter of the golf ball, relative to a total number of the dimples, is equal to or greater than 50%,

[(3)] a percentage  $R_s'$  of a number of the dimples each having a diameter of equal to or greater than 10.10% but equal to or less than 10.37%, of the diameter of the golf ball, relative to the total number of the dimples, is equal to or greater than 50%,

[(4)] each hemisphere of the golf ball has a dimple pattern that includes three units that are rotationally symmetrical with respect to each other,

[(5)] the dimple pattern of each unit includes two small units that are mirror-symmetrical with respect to each other,

[(6)] the golf ball dimples satisfy the following mathematical formula (2.1):

$$R_s \geq -2.5 * S_o + 273 \text{ (2.1), and}$$

[(7)] the golf ball dimples satisfy the following mathematical formula (2.5):

$$R_s' \geq -2.2 * S_o + 252 \text{ (2.5).}$$

---

<sup>2</sup> Appellant enumerates the claimed limitations as indicated above, in brackets. Appeal Br. 4. For convenience, we shall also refer to these numbered limitations.

## REJECTIONS

Claims 1–7 and 10–12 are rejected under 35 U.S.C. § 103 as being unpatentable over Watanabe (US 2011/0143861 A1, published June 16, 2011), Isogawa (US 2013/0324318 A1, published Dec. 5, 2013), and Fitchett (US 2012/0046132 A1, published Feb. 23, 2012). Final Act. 3.

Claims 1, 6, 7, and 10–12 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1–8 of copending Application No. 15/338,889.<sup>3</sup> Final Act. 9.

## OPINION

### Claim 1:

The Examiner finds that, viewing the dimple features shown in Table 3, Watanabe discloses a golf ball having a percentage So of limitation (1), a percentage Rs of limitation (2), and dimples satisfying a mathematical formula of limitation (6). Final Act. 3 (citing Watanabe ¶¶ 135, 136, 141; Tables 3, 4). In regard to a percentage Rs' of limitation (3), the Examiner finds that the 234 dimples of No. 2 in Table 3 would meet this limitation; however, these dimples would not satisfy the mathematical formula of limitation (7) because “[a]n occupation ratio of 81 % generates a value for the right hand side of the claimed inequality expression of 73.8 being *slightly greater* than 71.” *Id.* at 3–4 (emphasis added). In other words, the Examiner finds that Watanabe’s golf ball comes close to meeting both

---

<sup>3</sup> The double-patenting rejection is not contested and therefore not further addressed herein. *See* Appeal Br. 10. “Once the provisional rejection has been made, there is nothing the examiner and the applicant must do until the other application issues.” *In re Mott*, 539 F.2d 1291, 1295–96 (CCPA 1976); *see also* MPEP § 804(I).

limitations (3) and (7). The Examiner, however, finds that in view of the dimple pattern D2 of Table 6 of Isogawa, this reference discloses “[d]imple diameters meeting the claimed range of equal to or greater than 10.10 to 10.37 %,” i.e., limitation (3). *Id.* at 4. The Examiner acknowledges that “Isogawa teaches 222 dimples having dimples with diameters within the range plus 28 dimples having a diameter of 4.5 mm, which is *slightly outside the range*” but reasons that “[a] total of 250 within the claimed di[a]meter range in a pattern of 324 dimples would provide a ratio of 77 %, which is greater than or equal to 71.6, see [Isogawa] Table 6, pattern D2.” *Id.* (emphasis added). In other words, the Examiner finds that Isogawa’s golf ball meets limitation (7) and comes close to meeting limitation (3).

The Examiner, thus, concludes that it would have been obvious to modify Watanabe’s golf ball to provide “a dimple pattern having 77 % of the dimple diameters within the claimed range or nearly within the claimed range, as taught by Isogawa,” to provide “an aerodynamically effective dimple pattern” and “yield the predictable result of improving the flight performance of the ball.” Final Act. 4. The Examiner also acknowledges that Watanabe’s modified golf ball does not have “28 of 250 dimples having a diameter which is a fraction of a millimeter larger than the diameter range as claimed.” *Id.* Consequently, the Examiner concludes that it would have been obvious “to decrease the diameter of 28 dimples, to meet the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges

involves only routine skill in the art.” *Id.* (citing *In re Aller*, 220 F.2d 454, 456 (CCPA 1955)).<sup>4</sup>

Appellant contends that Watanabe “fails to disclose or suggest any of” limitations (4), (5), and (7). Appeal Br. 5. Appellant also contends that Fitchett “fails to disclose or suggest any of” limitations (1)–(3), (6), and (7). *Id.* at 6. Appellant further contends that Isogawa “fails to disclose or suggest” limitations (4) and (5). *Id.* at 7.<sup>5</sup> These contentions are unpersuasive in that they attack the references individually. *See* Final Act. 3–4; Ans. 4. “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. [The reference] must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (internal citation omitted).

Appellant further contends that “significant patentable distinctions exist over Watanabe [] which fails to adequately support prima facie obviousness against claim 1.” Appeal Br. 5. The Examiner correctly responds that

---

<sup>4</sup> The Examiner relies on Fitchett for limitations (4) and (5). Final Act. 5.

<sup>5</sup> To the extent Appellant is arguing that there is no motivation to combine the teaching of Fitchett to the teaching of Watanabe, such argument is also unavailing. *See* Appeal Br. 6 (arguing that an artisan “would not attempt to modify Watanabe [] in view of Fitchett” and that “[t]he only basis would be improper hindsight reconstruction”). The Examiner correctly responds that “a symmetrical arrangement of dimples [of Fitchett] provides uniform ball flight performance, in any axis of rotation. As noted above[,] Watanabe states that the inventive dimple catalog may be combined with known dimple patterns.” Ans. 4; *see also* Fitchett Abstr., ¶¶ 5, 151; Fig. 3A.

Watanabe teaches [the] claimed features related to the catalog of dimples, noting the exemplary dimple catalog, displayed in Table 3, including 234 dimples within the claimed range of 10.10 to 10.37 % of ball diameter, and group, No. 1, of 12 dimples having a diameter greater than 10.37% of the ball diameter, being 4.6 mm instead of 4.42 mm, placing those 12 dimples outside the claimed range by a difference of 0.18 mm, diameter. In order to satisfy the claimed inequality expression, the value  $R_s$  must be equal to or greater than 73.8%. A modification of Watanabe, to reduce the diameter of the 12 dimples by 0.18 mm would place 246 of the 330 dimples within the claimed range and yield an  $R_s$  value of 74.5%. Watanabe teaches the claim limitations directed to the catalog of dimples, except for the single feature noted above.

Ans. 3. In other words, there are no “significant patentable distinctions” over Watanabe’s golf ball and the golf ball of claim 1 in terms of dimple sizes and numbers.

According to Appellant, Example 1 in Table 7 of Appellant’s Specification is an embodiment of the subject matter of claim 1 and “exhibits advantages[.]” in the “flight distance over Comparative Example 1.” Appeal Br. 5. Appellant then directs our attention to Table 2 of the Sajima Declaration,<sup>6</sup> which shows flight test results of Appellant’s Samples 1 and 2 versus Sample 3, which represents the flight test result of Isogawa’s golf ball. *Id.* at 7. According to Appellant, “the comparative tests of the Sajima Declaration show advantageous flight distance properties for the Sample 1 and Sample 2 embodiments of the claimed invention over those of Sample 3.” *Id.* at 8.

---

<sup>6</sup> Declaration of Takahiro Sajima, under 37 C.F.R. § 1.132, dated February 21, 2018.

We observe that, contrary to Appellant's assertion, viewing the entire data in Table 7, Appellant's Specification does *not* show significant advantages in the flight distance of Appellant's golf balls (230.0 m for Ex. 1 and 230.2 m for Ex. 2) over the flight distance of the Comparative Examples (229.2 m for "Com. Ex. 1"; 230.0 m for "Com. Ex. 2"; and 230.1 m for "Com. Ex. 3"). Spec. 44, Table 7. Further, the Examiner correctly responds that, in regard to the Sajima Declaration, "[t]he difference in flight distance between Sample 2 and Sample 3 is less than one-half meter." Ans. 5. Notably, Sample 1 and Sample 2 (Appellant's golf ball) have a flight distance of 230.0 m and 229.5 m, respectively, whereas for Sample 3 (Isogawa's golf ball) has a flight distance of 229.1 m. *See* Sajima Declaration, Table 2. Thus, the data from the Sajima Declaration also does *not* show significant advantages in the flight distance of Appellant's golf balls over the flight distance of Isogawa's golf ball.

Appellant contends that Isogawa's "dimple design falls outside" limitation (7). Appeal Br. 6. Referring to Table 2 of the Sajima Declaration, Appellant notes that Sample 1 and Sample 2 (Appellant's golf ball) have rearranged  $R_s'$  values of 7.11 and 0, respectively, whereas Sample 3 (Isogawa's golf ball) has a rearranged  $R_s'$  value of -31.77. *Id.* at 7. Appellant argues that in viewing the D2 dimple pattern of Isogawa's Table 6, "only the 'B' dimples satisfy the  $R_s'$  definition, while the 'C' dimples at 10.07% fall below the 10.10% minimum of  $R_s'$ , which means that 122/324 or 38%, satisfy  $R_s'$  which is less than the 50% minimum." *Id.* at 8.

The Examiner correctly responds that

Sample 3 configured according to the catalog of dimples, D2, disclosed by Isogawa, and repeated on page 8 of appellant's brief, includes 122 dimples within the claimed range for  $R_s'$  and

100 dimples having a diameter lower than the claimed range by 1/100 of a millimeter (10.10 % of ball diameter being 4.31 mm). An alteration of the diameter of the 100 dimples would place the ball well within the claim limitation for Rs'. *The ball exhibits an Rs' related figure significantly different from Samples 1 and 2, when the calculation is performed on the basis of 122 dimples being within the claimed range.* Essentially, the claimed inequality expression including Rs', eliminates dimples differing very little in structure, from dimples used in the calculation. *The calculated value of Rs' will differ markedly between two golf balls having a very slight difference in their dimple catalogs.*

Ans. 5 (emphases added). Thus, the Examiner explains that the difference in the rearranged Rs' values shown in Table 2 of the Sajima Declaration is due to the exclusion of dimples in Isogawa's golf ball that have diameters, which only slightly fall outside the claimed range.

Appellant contends that the discussion above concerning Isogawa would suggest that Isogawa "fails to provide any suggestion as to which direction [an ordinary artisan] should head in order to 'optimize.'" Appeal Br. 8. Appellant argues that an ordinary artisan "would more likely modify [Isogawa's] dimple pattern D2 away from the claimed invention and closer to the other disclosed dimple patterns, i.e. patterns D1 and D3 to D12, which are all farther removed from the claimed invention." *Id.* at 9.

As discussed above, the flight test results comparing other golf balls with those of Appellant's do not suggest a significant difference, i.e., unexpected results. *See also* Ans. 5 (explaining that "the test data does not support a finding of criticality commensurate with the scope of the claims"). Further, Appellant does not direct us to any portion of Isogawa that discredits, criticizes, or disparages Appellant's dimple size ranges. Like our appellate reviewing court, "[w]e will not read into a reference a teaching away from a process where no such language exists." *DyStar Textilfarben*

*GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006).

Further, “where 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”). *In re Aller*, 220 F.2d at 456. “[T]he discovery of an optimum value of a variable in a known process is usually obvious.” *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1368 (Fed. Cir. 2007). The rationale for determining the optimal parameters for prior art result-effective variables “flows from the ‘normal desire of scientists or artisans to improve upon what is already generally known.’” *Id.* (quoting *In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003).)

In the Office Action, the Examiner reasons that it would have been obvious to combine the teachings of the cited prior art to have “an aerodynamically effective dimple pattern, to yield the predictable result of improving the flight performance of the ball.” Final Act. 4. Portions of Watanabe, identified by the Examiner, that demonstrate dimple size and dimple numbers as result-effective variables—thus supporting the Examiner’s proposed modification—are: (1) “to further enhance the aerodynamic properties and improve the distance, as in ordinary golf balls, it is preferable for numerous dimples to be formed on the surface of the cover. By *optimizing* such parameters as the number of dimple types and the total number of dimples . . . .” (Watanabe ¶ 135 (emphasis added); *see also id.* ¶ 136); and (2) “[n]or is any particular limitation imposed on the geometrical arrangement of the dimples; use may be made of a known arrangement, . . . from the standpoint of reducing variability in the flight of the ball, preferred use may be made of a dimple arrangement . . . .” (*Id.*

¶ 139). Moreover, in the Answer, the Examiner correctly responds that “at paragraph 0104, Isogawa indicates that turbulization may be promoted by providing a relatively low standard deviation of dimple diameters, which would have motivated alteration to reduce the difference in dimple diameters.” Ans. 4. We agree with the Examiner that a “minimal degree of alteration [is] required, in order to modify the disclosed dimple catalogs to meet the claimed limitations” and that the cited prior art “represents a disclosure of the general conditions of the invention and the necessary modification is within that contemplated by the cited case law.” *Id.* at 5.

Claims 2–7 and 10–12:

Appellant contends that “[t]hese claims recite additional features including one or more features selected from layer hardness, layer dimensions and dimple dimensions.” Appeal Br. 10.

The Examiner correctly responds that “Watanabe teaches that the golf ball parameters driving the calculations associated with Claims 2 and 3 are result effective variables and that a person of ordinary skill in the art would have been motivated to optimize the parameters using values within the disclosed ranges.” Ans. 6. Further, Appellant’s mere reiteration of recited language of the claims does not inform us of error in the Examiner’s reliance on the cited art. *See* 37 C.F.R. § 41.37(c)(1)(iv) (statements that merely point out what a claim recites are not considered to present an argument for separate patentability of the claim); *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (Rule 41.37 requires more than recitation of the claim elements and a naked assertion that the elements are not found in the prior art).

CONCLUSION

The Examiner's rejection of claims 1–7 and 10–12 over prior art is affirmed.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–7, 10–12	103	Watanabe, Isogawa, Fitchett	1–7, 10–12	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED