

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 March 2001 (22.03.2001)

PCT

(10) International Publication Number
WO 01/19465 A1

(51) International Patent Classification⁷: **A63B 37/14**

(21) International Application Number: PCT/US00/25434

(22) International Filing Date:
14 September 2000 (14.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/398,918 16 September 1999 (16.09.1999) US

(71) Applicant: **CALLAWAY GOLF COMPANY** [US/US];
2285 Rutherford Road, Carlsbad, CA 92008 (US).

(72) Inventor: **OGG, Steven, S.**; 979 Turnstone Road, Carlsbad, CA 92009 (US).

(74) Agent: **CATANIA, Michael, A.**; 2285 Rutherford Road, Carlsbad, CA 92008 (US).

(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

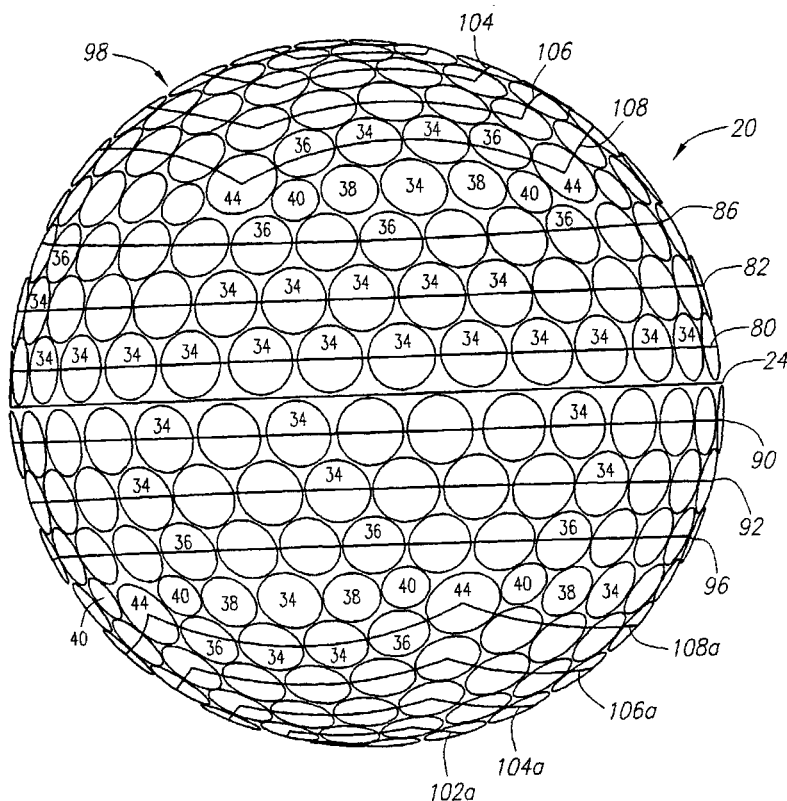
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **GOLF BALL DIMPLES WITH CURVATURE CONTINUITY**



(57) Abstract: A golf ball (20) having a surface (22) thereon with a plurality of dimples (34, 36, 38, 40, 42, 44 and 46) on the surface (22) is disclosed herein. The contour (199) of each of the dimples (34, 36, 38, 40, 42, 44 and 46) is continuous from a first edge (200a) of each of the dimples (34, 36, 38, 40, 42, 44 and 46) to a second opposing edge (200b) of each of the dimples (34, 36, 38, 40, 42, 44 and 46). The contour (199) at the first edge (200a) may be equal to the contour (199) of a sphere of the golf ball (20). The contour (199) of each of the dimples (34, 36, 38, 40, 42, 44 and 46) may be convex from the first edge (200a) to a first inflection point (202a) and from the second edge (200a) to a second inflection point (202b), and the contour (199) may be concave between the first inflection point (202a) and the second inflection point (202b). The contour (199) may be defined by the following equation: $P(t) = 3 B_{i,J_{n,i}}(t)$ $0 \leq t \leq 1$, wherein $J_{n,i}(t) = \binom{n}{i} t^i (1-t)^{n-i}$, n is equal to at least five, and $i = n + 1$. The radius of each point from a bottom center

(204) to the first edge (200a) may be different from any other point from the bottom center (204) to the first edge (200a).