



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A47J 43/046	A1	(11) International Publication Number: WO 00/41607 (43) International Publication Date: 20 July 2000 (20.07.00)
(21) International Application Number: PCT/US00/00668 (22) International Filing Date: 11 January 2000 (11.01.00) (30) Priority Data: 09/228,377 12 January 1999 (12.01.99) US 09/473,311 28 December 1999 (28.12.99) US (71) Applicant: ISLAND OASIS FROZEN COCKTAIL CO., INC. [US/US]; 107 Norfolk Street, Walpole, MA 02081 (US). (72) Inventors: KARKOS, John, F., Jr. ; 5 Frost Hill Avenue, Lisbon Falls, ME 04252 (US). MICHELI, John ; 625 Bancroft Road, Brick, NJ 08724 (US). (74) Agents: WELCH, John, L. et al. ; Lahive & Cockfield, LLP, 28 State Street, Boston, MA 02109 (US).	(81) Designated States: 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, ARIPO patent (GH, GM, KE, LS, MW, 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 <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: **FOOD PROCESSING APPARATUS INCLUDING MAGNETIC DRIVE**

(57) Abstract

A magnetic induction drive for a rotatable driven member in a sealed housing, in particular, a shaft-mounted blade in a blender cup or a shaft-mounted blade in an ice shaver, uses a comparatively thin circular drive plate of a magnetizable material with circumferentially arrayed poles enclosed within a housing secured to a drive shaft. A brushless d.c. motor in a base separate from the housing has a rotor formed as an array of pie-shaped permanent magnet regions that interact with an electronically controlled, rotating electromagnetic field produced by a ring of stator coils. A second such permanent magnet is coupled to rotate coaxially and in unison with the rotor, with poles of opposite polarity aligned and adjacent one another. A steel disc is sandwiched between and bonded to the rotor and the second permanent magnet. The magnetic field (lines of flux) of the second magnet extends axially away from the rotor to induce magnetic poles of opposite polarity in the drive plate. This second magnet-to-plate magnetic coupling operates across a closely-spaced gap that includes the bottom wall of the base, the upper wall of the housing, and air gaps between these walls, and the plate and the second magnet. A gear train assembly can be coupled to the drive shaft to increase or decrease the amount of torque transmitted from the drive plate to the driven member.

