(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number
WO 2004/069435 A2

(51) International Patent Classification[7]: B08B

(21) International Application Number:
PCT/US2004/003009

(22) International Filing Date: 3 February 2004 (03.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/444,752 4 February 2003 (04.02.2003) US

(71) Applicant *(for all designated States except US)*: **FORWARD TECHNOLOGY A CREST GROUP COMPANY** [US/US]; 3050 Ranchview Lane North, Minneapolis, MN 55447 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **MANCHESTER, Russell** [US/US]; 140 Scott Lane, Waconia, MN 55387 (US). **MOUSER, Wayne** [US/US]; 8115 Ithaca Lane North, Maple Grove, MN 55311 (US).

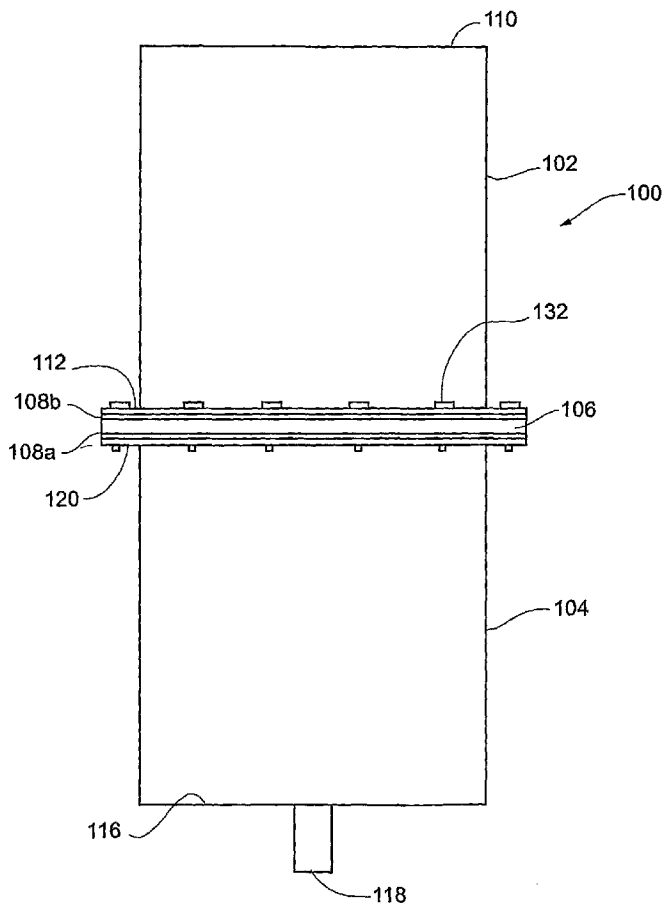
(74) Agents: **HAUN, J., Paul** et al.; Patterson, Thuente, Skaar & Christensen, P.A., 4800 IDS Center, 80 South Eighth Street, Minneapolis, MN 55402-2100 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH,

[Continued on next page]

(54) Title: ULTRASONIC CLEANING TANK



(57) Abstract: An ultrasonic cleaning tank for use in cleaning electronic parts having a top portion and a bottom portion operably divided by a perforated dispersion plate. The cleaning tank is assembled to avoid internal projections or obstructions within the top portion to create a piston-like, laminar flow region. The dispersion plate is constructed to provide a backpressure within the bottom portion so as to promote even flow of a cleaning fluid through the perforations. The cleaning fluid flows upward past an electronic part. At the same time, an ultrasonic transducer supplies ultrasonic energy within the cleaning fluid creating cavitation such that any particulate matter is scrubbed from the electronic parts. The particulates are subsequently carried upward by the laminar flow and over a tank lip. The cleaning tank can be used in either a batch or recirculating mode.

WO 2004/069435 A2

GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that 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.