

(19) World Intellectual Property Organization
International Bureau



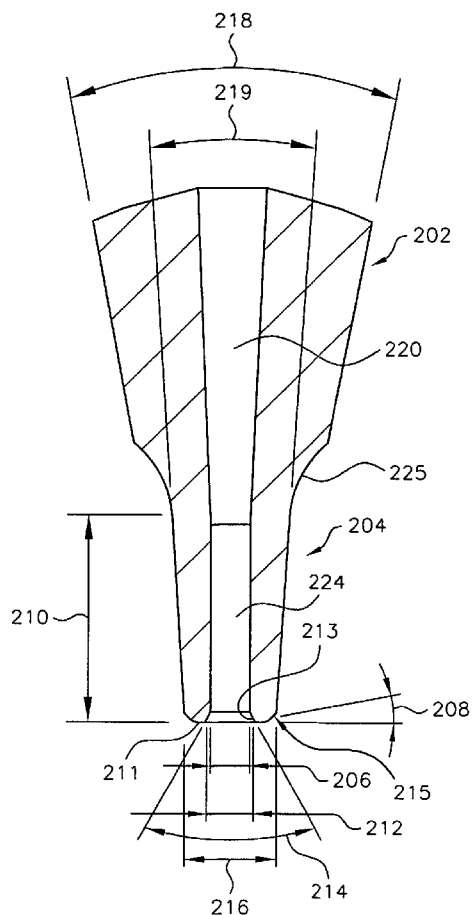
(43) International Publication Date
30 January 2003 (30.01.2003)

PCT

(10) International Publication Number
WO 03/009335 A2

- (51) International Patent Classification⁷: **H01L** 30900 Yakov (IL). **SONNENREICH, Benjamin**; Nechemia Street 31, 32295 Haifa (IL). **BAHALUL, Arie**; Hatzbani Street 25A, Yokneam, 20692 Elite (IL).
- (21) International Application Number: PCT/US02/16663
- (22) International Filing Date: 29 May 2002 (29.05.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/907,191 17 July 2001 (17.07.2001) US
- (71) Applicant: **KULICKE & SOFFA INVESTMENTS, INC.** [US/US]; Little Falls Center Two, Suite 3165, 2751 Centerville Road, Wilmington, DE 19808 (US).
- (72) Inventors: **PERLBERG, Gil**; Haimaish Street 5, Zihron, Yakov (IL). **ATZMON, Ziv**; Hashaked Street 2, Zihron,
- (74) Agents: **ETKOWICZ, Jacques, L.** et al.; Ratner & Prestia, 301 One Westlakes (Berwyn), P.O. Box 980, Valley Forge, PA 19482-0980 (US).
- (81) Designated States (*national*): CN, JP, KR, PH, SG.
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- 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.*

(54) Title: ULTRA FINE PITCH CAPILLARY



(57) Abstract: A bonding tool for bonding a fine wire to bonding pads having a very fine pitch is disclosed. The bonding tool comprises a working tip at an end thereof. The working tip includes i) a tapered section having a pre-determined angle with respect to the longitudinal axis of the first cylindrical section, ii) a working face with a first annular chamfer formed at an outside portion of an end of the working tip and, iii) a second annular chamfer formed at an inside portion of the end of the working tip. The first and second annular chamfer adjacent one another and a substantially cylindrical axial passage coupled to an upper portion of the second annular chamfer. The bonding tool is formed from a material containing at least 80 % ZrO₂ by weight.



WO 03/009335 A2