



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H05K 7/10, G01R 1/04	A1	(11) International Publication Number: WO 00/18204 (43) International Publication Date: 30 March 2000 (30.03.00)
(21) International Application Number: PCT/US99/21269 (22) International Filing Date: 23 September 1999 (23.09.99) (30) Priority Data: 60/101,466 23 September 1998 (23.09.98) US (71) Applicant: WELLS-CTI, INC. [US/US]; 3502 N. Olive Road, South Bend, IN 46628 (US). (72) Inventor: ORWOLL, Erik, G.; Suite 2, 2102 West Quail Avenue, Phoenix, AZ 85027 (US). (74) Agent: TYCHONIEVICH, Daniel; Baker & Daniels, Suite 250, 205 W. Jefferson Boulevard, South Bend, IN 46601 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, 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. 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: VERTICALLY ACTUATED BGA SOCKET**(57) Abstract**

The chip carrying socket includes a base (114) and at least one and preferably two cam shafts (22) journaled or supported within the base in a spaced relationship for rotational movement relative to the base. A plate (24) is supported upon the base and extends between the cam shafts. The plate has a plurality of openings (26) formed therein which receive the leads of an IC (52). In a BGA type IC, these leads are semi-spherical balls which depend from the lower face of the IC. Conductors or pins (20) adapted for connection to testing or operative circuitry are carried by the base and extend into proximity with the leads of the IC as it supported upon the plate. Each cam shaft engages the plate so as to shift the plate relative to the base causing the conductors carried by the base to forcibly engage the leads of the IC when in one shifted position and causing the conductors to be released from such forcible engagement with the leads of the IC when in a second shifted position. A top (30) located over the base movable between upper and lower positions relative to the base and the underlying plate is provided. The top engages each of the cam shafts to rotate the shaft causing the plate to be shifted between its previously mentioned positions as the top is moved between its upper and lower positions. The top also releases a latch (28) which holds the IC in place, as the top is moved to the lower position. In addition, adjustable locators (56) which serve as a guide for the IC when it is placed upon the plate are provided and may be selectively position upon the plate depending upon the accommodating size of the IC and selected position of the IC upon the plate.

