

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

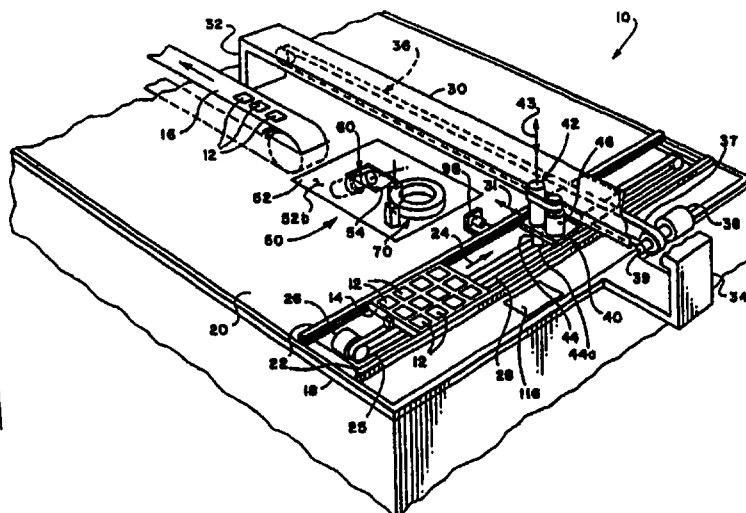
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G01B 11/00, 11/24, B23P 19/00	A1	(11) International Publication Number: WO 99/56075 (43) International Publication Date: 4 November 1999 (04.11.99)
(21) International Application Number: PCT/US99/08936 (22) International Filing Date: 26 April 1999 (26.04.99) (30) Priority Data: 09/069,056 28 April 1998 (28.04.98) US (71) Applicant: SEMICONDUCTOR TECHNOLOGIES & INSTRUMENTS, INC. [US/US]; 13020 Floyd Road, MS 3614, Dallas, TX 75243 (US). (72) Inventors: ROY, Rajiv; 2900 Mountainview Place, Plano, TX 75023-3467 (US). GLUCKSMAN, Michael, D.; 600 Legacy Drive #1416, Plano, TX 75023 (US). WAHAWISAN, Weerakiat; 2711 Wentwood Drive E., Carrollton, TX 75007 (US). HASTEN, Paul, Harris; 2409 Stoneleigh Drive, Garland, TX 75044 (US). HARRIS, Charles, Kenneth; 9434 Hilldale Drive, Dallas, TX 75231 (US). EPP, George, Charles; Route 1, Box 117, Van Alstyne, TX 75495-9721 (US). (74) Agent: MARTIN, Michael, E.; Akin, Gump, Strauss, Hauer & Feld, L.L.P., P.O. Box 688, Dallas, TX 75313-0688 (US).	(81) Designated States: 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, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, 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.	



G00002

(54) Title: INSPECTION SYSTEM AND METHOD FOR LEADS OF SEMICONDUCTOR DEVICES



165165

(57) Abstract

A system (10) for transporting and inspecting leads of semiconductor devices (12) includes a head (42) for transporting the semiconductor devices (12) from one support structure (14) to a second support structure (16) and wherein two dimensional and three dimensional measurements of the positional accuracy of the leads is carried out during the transport process. The inspection apparatus (50) is interposed in the transport path (31) and includes a first optical sensor (60) oriented to capture a two dimensional image of the semiconductor device package (12) and compare the image with a predetermined two dimensional image stored in a central processing unit (CPU). A high intensity light source (70) generates a plane of light which is reflected off of the semiconductor device leads to a second optical sensor (65) wherein a so-called three dimensional image is generated to be compared by the CPU with predetermined or calculated positional relationships of the leads to establish coplanarity of the lead tips, or lack thereof.