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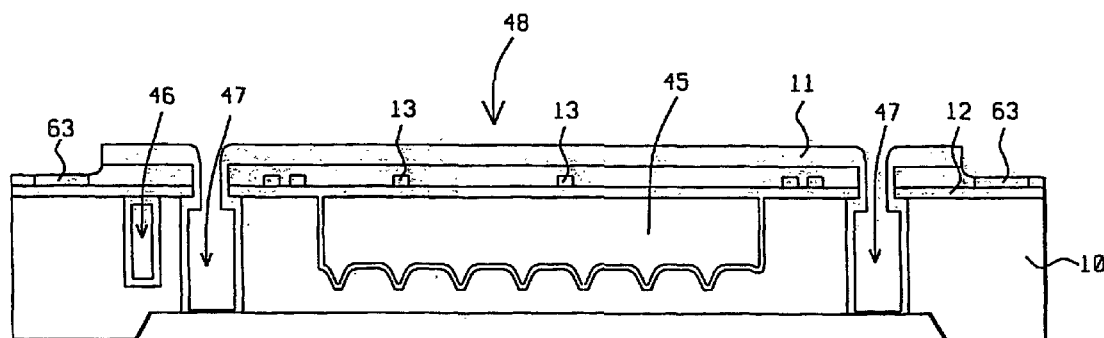
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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian

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(54) Title: SINGLE WAFER FABRICATION OF INTEGRATED MICRO-FLUIDIC SYSTEM



(57) Abstract: Formation of micro-fluidic systems is normally achieved using a multi-wafer fabrication procedure. The present invention teaches how a complete micro-fluidic system can be implemented on a single chip. The invention uses only dry etch processes to form micro-chambers. In particular, it makes use of deep reactive ion etching whereby multiple trenches of differing depths may be formed simultaneously. Buried micro-chambers are formed by isotropically increasing trench widths using an etchant that does not attack the mask so the trenches grow wider beneath the surface until they merge. Deposition of a dielectric layer over the trenches allows some trenches to be sealed and some to be left open. Micro-pumps are formed by including in the micro-chamber roof a layer that is used to change chamber volume either through electrostatically induced motion or through thermal mismatch as a result of its being heated.



WO 03/097520 A1



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