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(54) **MICROFLUIDIC CHANNEL FABRICATION METHOD**

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(\* ) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(57) **ABSTRACT**

A new channel structure for microfluidic systems and process for fabricating this structure. In contrast to the conventional practice of fabricating fluid channels as trenches or grooves in a substrate, fluid channels are fabricated as thin walled raised structures on a substrate. Microfluidic devices produced in accordance with the invention are a hybrid assembly generally consisting of three layers: 1) a substrate that can or cannot be an electrical insulator; 2) a middle layer, that is an electrically conducting material and preferably silicon, forms the channel walls whose height defines the channel height, joined to and extending from the substrate; and 3) a top layer, joined to the top of the channels, that forms a cover for the channels. The channels can be defined by photolithographic techniques and are produced by etching away the material around the channel walls.

**17 Claims, 6 Drawing Sheets**

