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(54) **Title**: PROCESSES FOR MULTI-LAYER DEVICES UTILIZING LAYER TRANSFER

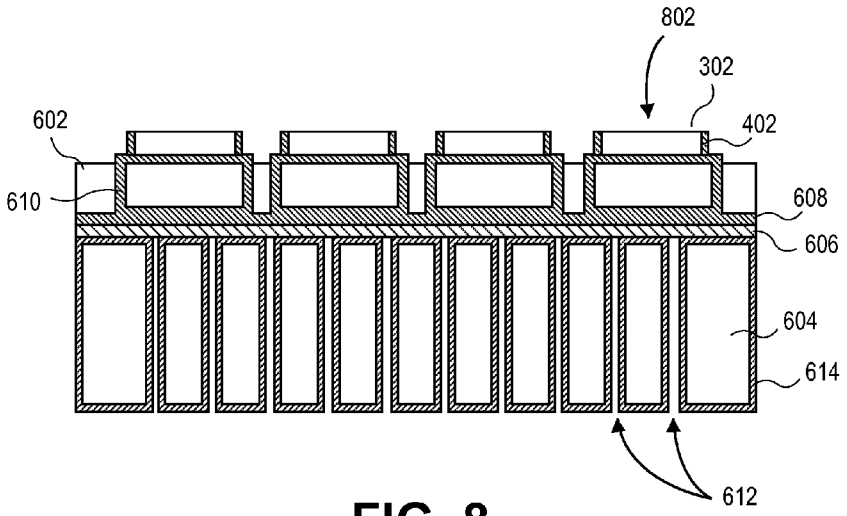



FIG. 8

(57) **Abstract**: A method includes forming a release layer over a donor substrate. A plurality of devices made of a first semiconductor material are formed over the release layer. A first dielectric layer is formed over the plurality of devices such that all exposed surfaces of the plurality of devices are covered by the first dielectric layer. The plurality of devices are chemically attached to a receiving device made of a second semiconductor material different than the first semiconductor material, the receiving device having a receiving substrate attached to a surface of the receiving device opposite the plurality of devices. The release layer is etched to release the donor substrate from the plurality of devices. A second dielectric layer is applied over the plurality of devices and the receiving device to mechanically attach the plurality of devices to the receiving device.

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USPC - 438/478
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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USPC - 438/478

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 438/478-484; 257/499, 502 (keyword delimited)
IPC(8) - H01L 21/20 (2014.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, PubWEST, Google Scholar/Patents, ScienceDirect
Search Terms Used: Semiconductor, release, sacrificial, donor, substrate, etch, mask, handle

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 2011/0140176 A1 (BRIERE) 16 June 2011 (16.06.2011), entire document, especially para. [0034] | 20 |
| A | US 2008/0108171 A1 (ROGERS et al.) 08 May 2008 (08.05.2008), entire document, especially FIG. 1A, 3C, para. [0090], [0107] | 1-19 |
| A | US 2001/0036561 A1 (WOLK et al.) 01 November 2001 (01.11.2001), entire document, especially para. [0042], [0089]-[0091] | 1-19 |
| A | US 2010/0330506 A1 (KNECHTEL) 30 December 2010 (30.12.2010), entire document | 1-19 |
| A | US 2012/0091587 A1 (OR-BACH et al.) 19 April 2012 (19.04.2012), entire document | 1-19 |

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