US009190736B1

(12) **United States Patent**
Burckel et al.

(10) **Patent No.: US 9,190,736 B1**
(45) **Date of Patent: Nov. 17, 2015**

(54) **FABRICATION OF SMALL-SCALE STRUCTURES WITH NON-PLANAR FEATURES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 827 days.

(21) Appl. No.: **13/324,052**

(22) Filed: **Dec. 13, 2011**

Related U.S. Application Data

(60) Provisional application No. 61/433,457, filed on Jan. 17, 2011.

(51) **Int. Cl.**
H01Q 15/00 (2006.01)
H01Q 7/00 (2006.01)

(52) **U.S. Cl.**
CPC ***H01Q 15/0086*** (2013.01); ***H01Q 7/00*** (2013.01)

(58) **Field of Classification Search**
CPC H01Q 15/0086; H01Q 5/22; H01Q 7/00
USPC ..... 343/866, 700 MS, 742
See application file for complete search history.

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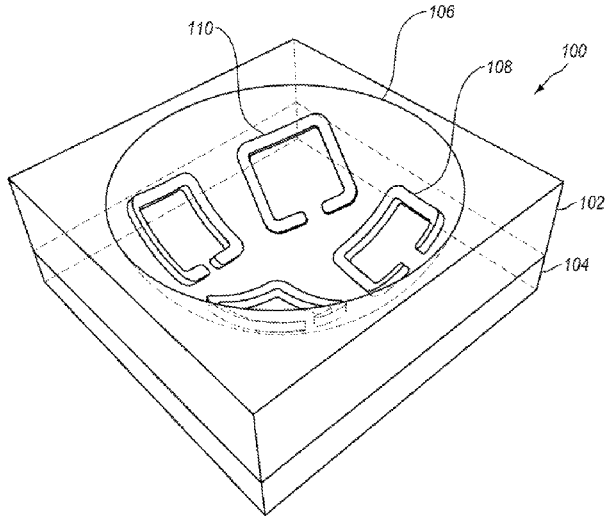
(57) **ABSTRACT**

The fabrication of small-scale structures is disclosed. A unit-cell of a small-scale structure with non-planar features is fabricated by forming a membrane on a suitable material. A pattern is formed in the membrane and a portion of the substrate underneath the membrane is removed to form a cavity. Resonators are then directionally deposited on the wall or sides of the cavity. The cavity may be rotated during deposition to form closed-loop resonators. The resonators may be non-planar. The unit-cells can be formed in a layer that includes an array of unit-cells.

5 Claims, 13 Drawing Sheets