

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0416745 A1 WANG

Dec. 29, 2022 (43) **Pub. Date:**

(54) METHOD OF MANUFACTURING BULK ACOUSTIC WAVE RESONATOR

- (71) Applicant: Newsonic Technologies, Shenzhen
- Inventor: **Jian WANG**, Shenzhen (CN)
- (21) Appl. No.: 17/899,186
- (22)Filed: Aug. 30, 2022
- (30)Foreign Application Priority Data

Apr. 28, 2022 (CN) 202210454622.6

Publication Classification

(51) **Int. Cl.** (2006.01)H03H 3/02

ABSTRACT (57)

Provided is a method of manufacturing a bulk acoustic wave resonator, which includes: providing a piezoelectric substrate for forming a piezoelectric layer; forming a first electrode structure on the portion of the piezoelectric substrate for forming the piezoelectric layer; forming a dielectric layer on the first electrode structure, and performing a patterning process on the dielectric layer to form a patterned dielectric layer comprising a sacrificial dielectric part and a periphery dielectric part; forming a boundary layer on the patterned dielectric layer, the boundary layer covering a surface of the patterned dielectric layer and surrounding the sacrificial dielectric part; thinning the piezoelectric substrate to form the piezoelectric layer, the first electrode structure being located at a first side of the piezoelectric layer; forming a second electrode structure on a second side of the piezoelectric layer; and removing the sacrificial dielectric part to form a resonant cavity.

