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(54) **ACOUSTIC RESONATOR HAVING SYMMETRIC COATING MATERIAL FOR IMPROVED COUPLING**

(71) Applicant: **Murata Manufacturing co., Ltd.**, Nagaokakyo-shi (JP)

(72) Inventors: **John KOULAKIS**, Los Angeles, CA (US); **Drew Morosin**, Oxnard, CA (US)

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(57) **ABSTRACT**

An acoustic resonator is provided that includes a substrate; a piezoelectric layer having first and second surfaces that oppose each other with the second surface coupled to the substrate either directly or via one or more intermediate layers. The piezoelectric layer includes a diaphragm over a cavity extending in at least one of the substrate and the one or more intermediate layers. An interdigital transducer (IDT) is disposed at the piezoelectric layer and has interleaved fingers on the diaphragm. Moreover, first and second dielectric layers are disposed on opposing surfaces of the diaphragm, where the first and second dielectric layers have a first thickness and the piezoelectric layer has a second thickness greater than the first thickness. The first and second dielectric layers each comprise one of ZnS, HfN, HfO_2, ZnO and Ta_2O_5, to improve an electrotechnical coupling of the acoustic resonator.

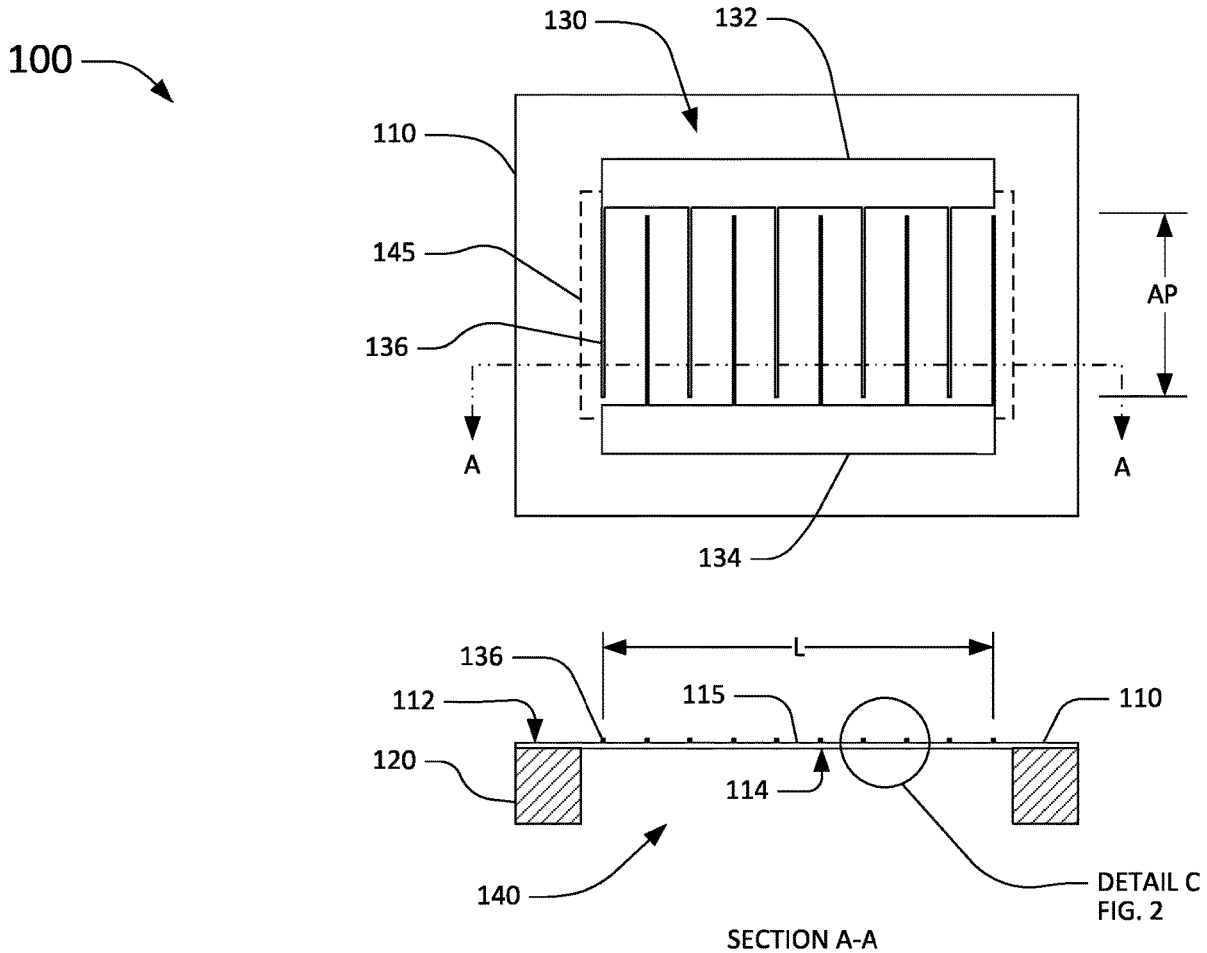

FIG. 2