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- (54) **Title: PHOTONIC INTEGRATED ACOUSTIC SENSOR**

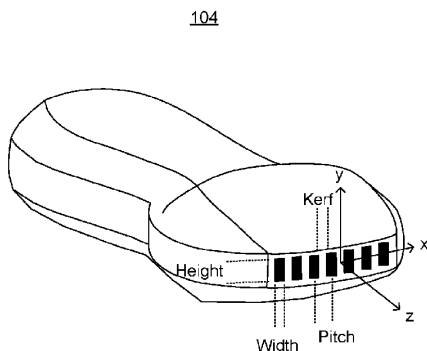


FIG. 1A

(57) **Abstract:** Disclosed herein are apparatus and methods for acoustic imaging. The disclosed embodiments include a plurality of ultrasonic transducers configured to generate ultrasound signals. The disclosed embodiments include an optical sensor array comprising a first optical sensor. The first optical sensor may include an acoustic stack. The acoustic stack may include a backing layer that supports an optical layer. The optical layer may include an optical waveguide and a tuning device configured to tune the optical length of the optical waveguide. The optical waveguide may include a core region and one or more cladding regions. The one or more cladding regions may have optical refractive index less than the core region.

[Continued on next page]

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