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(71) Applicant: **BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS** [US/AR]; 2404 University Avenue, Little Rock, Arkansas 72207 (US).

(72) Inventor: **THIBADO, Paul**; 1626 E. Ridgeway Dr., Fayetteville, Arkansas 72701 (US).

(74) Agent: **JOHNSON, Brian, R.** et al.; 999 Peachtree Street NE, Suite 1300, Atlanta, Georgia 30309 (US).

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(54) Title: ENERGY HARVESTING DEVICES AND SENSORS, AND METHODS OF MAKING AND USE THEREOF

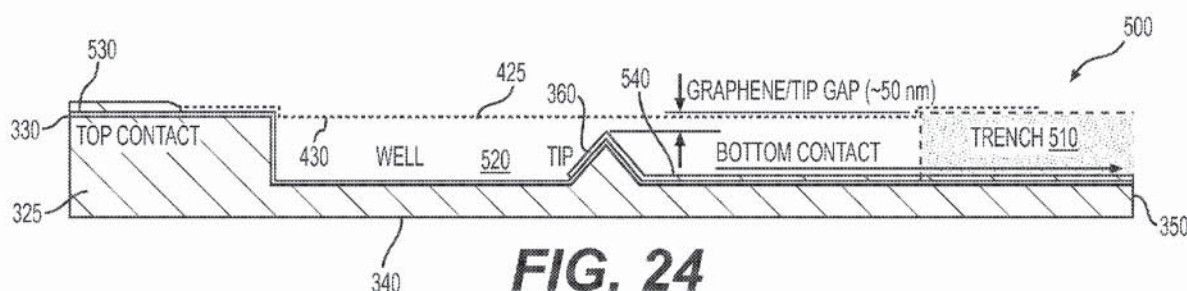


FIG. 24

(57) Abstract: Disclosed herein are energy harvesting devices and sensors, and methods of making and use thereof. The energy harvesting devices can comprise a membrane disposed on a substrate, wherein the membrane comprises a two-dimensional (2D) material and one or more ripples; and a component electrically, magnetically, electromagnetically, electrostatic/capacitively, piezoelectrically, magnetostrictively and/or mechanically coupled to the membrane and/or the substrate, such that the component is configured to harvest energy from the membrane. The sensors can comprise a membrane disposed on a substrate, wherein the membrane comprises a two-dimensional material one or more ripples; and a component electrically, magnetically, electromagnetically, electrostatic/capacitively, piezoelectrically, magnetostrictively and/or mechanically coupled to the membrane and/or the substrate, such that the component is configured to detect a signal from the membrane.