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(54) Title: **RESONANT SENSORS FOR WIRELESS MONITORING OF CELL CONCENTRATION**

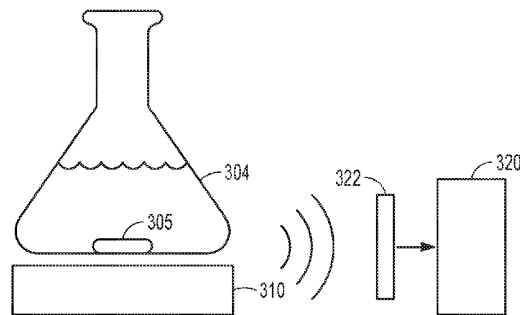


FIG. 3

(57) **Abstract:** Various embodiments relate to a resonator system that can be used to monitor proteins, cells, or small molecules in a container. A resonant sensor, embedded in or on the container, can have an inductive element and a capacitive element, where the container and resonant sensor are structured such that, when a concentration of the proteins, cells, or small molecules in the container changes, dielectric permittivity and conductivity of the proteins, cells, or small molecules contributes to capacitance of the resonant sensor to affect a resonant frequency shift of the resonant sensor. Interrogating the resonant sensor can be conducted wirelessly along with wirelessly transmitting data collected from the interrogation. Additional apparatus, systems, and methods are disclosed.



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