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(54) **METHODS AND APPARATUS FOR IMAGING WITH MAGNETIC INDUCTION**

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CPC ***G01R 33/4808*** (2013.01); ***A61B 5/0093*** (2013.01); *A61B 8/00* (2013.01)

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CPC A61B 5/0093; A61B 8/00; G01R 33/4808
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See application file for complete search history.

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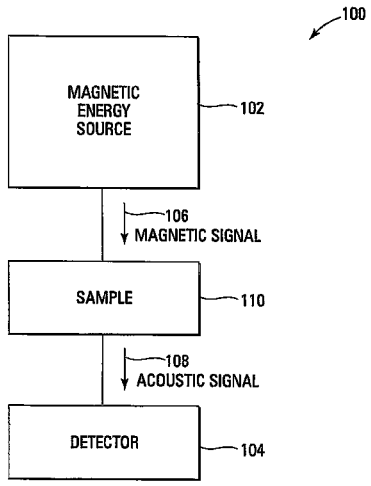
(57) **ABSTRACT**

An apparatus includes a magnetic energy source to provide a magnetic signal and a detector to detect an acoustic energy signal from a sample stimulated by the magnetic energy signal. A method includes applying a magnetic signal to a biological sample, detecting an acoustic signal from the sample, and processing the acoustic signal to determine the electrical impedance distribution of the sample, and identify disease in the biological sample. A method includes applying a magnetic signal to a sample, detecting a magnetic or electrical signal within the sample, and processing the magnetic or electrical signal to reconstruct electrical impedance distribution of the sample.

17 Claims, 18 Drawing Sheets