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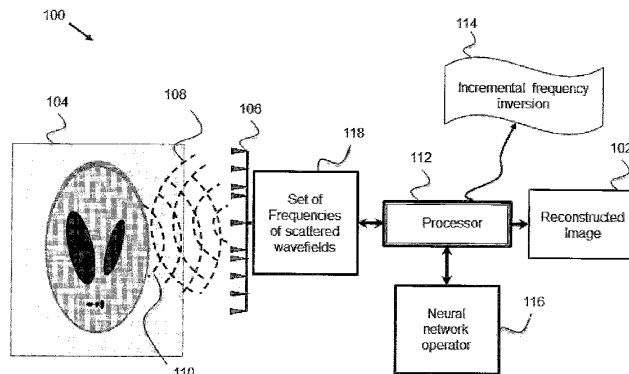
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FIG. 1



(57) **Abstract:** A tomographic imaging system is provided. The system receives measurements at frequencies of a wave-field scattered by an internal structure of an object, recursively reconstructs an image of the internal structure of the object until a termination condition is met, and renders the reconstructed image. For a current iteration, a frequency is added to previous frequencies used during a previous iteration to produce current frequencies, such that the added frequency is higher than frequencies present in the previous frequencies, and reconstructs a current image of the internal structure of the object that minimizes a difference between the scattered wave-field measured at the current frequencies and a wave-field synthesized from the current image. The wave-field synthesized from the current image is generated by a neural network operator. A previous image determined during the previous iteration initializes the reconstruction of the current image.

[Continued on next page]

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