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(54) **Title:** ORTHOGONAL SOURCE AND RECEIVER ENCODING

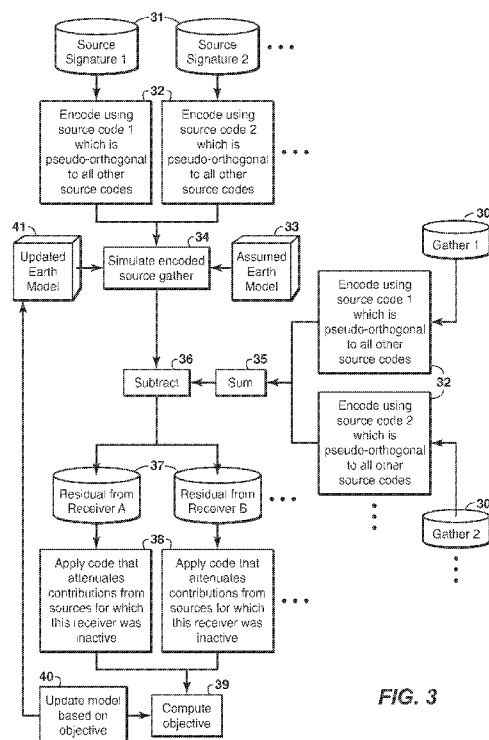


FIG. 3

(57) **Abstract:** Method for performing simultaneous encoded-source inversion of geophysical data to estimate parameters of a physical property model (41), especially adapted for surveys without fixed-receiver acquisition geometry, such as marine seismic surveys with moving source and receivers. The encoding functions (32) used on the sources to generate one or more simultaneous encoded-source gathers of data (35), as well as to simulate the same (34), are orthogonal or pseudo-orthogonal with respect to cross-correlation. In addition, receivers are also encoded, with the receiver encoding being designed to make a given receiver less sensitive to sources to which it was not listening during the survey (38). The encoding functions may be temporal bandpass filters differing one from another by central frequency, phase, or both. Efficiency of the method may be further improved by grouping several sources into a super-source, grouping the corresponding gathers into a super-gather, and then applying the above encoding strategy.



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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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