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(54) Title: SMART SOLIDS CONTROL SYSTEM

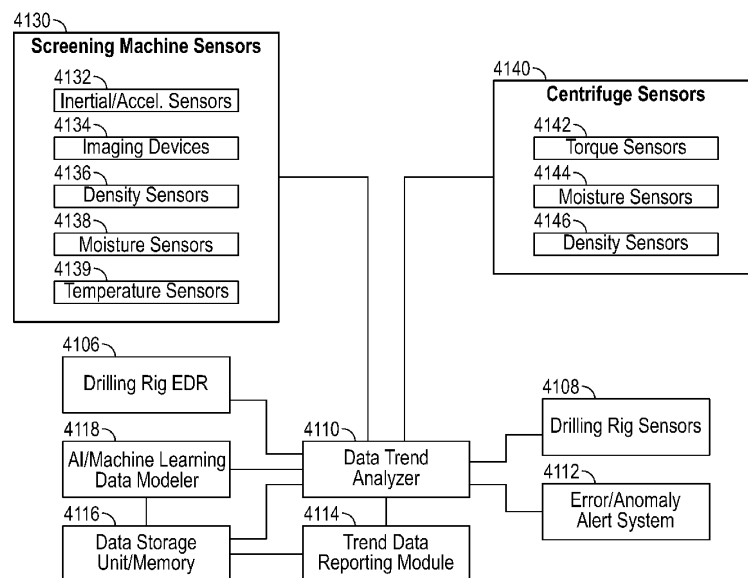


FIG. 41

(57) **Abstract:** A system for identifying a potential current or future issue in a well drilling system includes one or more sensors on a material separation system that processes materials generated by the well drilling system. The material separation system may include a vibratory screening machine. A sensor of the system may be configured to measure an acceleration of a portion of a machine that separates solids from liquids. Alternatively, the sensor of the system may be configured to measure a property of the solid-liquid mixture, the first solids-containing component and/or the shaker effluent. The system attempts to correlate well drilling operations to changes in the conditions experienced by the material separation system. When well drilling operations do not correlate to sensed changes in the conditions experienced by the material separation system, an alert is issued.

[Continued on next page]

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