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(54) Title: SYSTEM AND METHOD FOR INSPECTING A RAIL USING MACHINE LEARNING

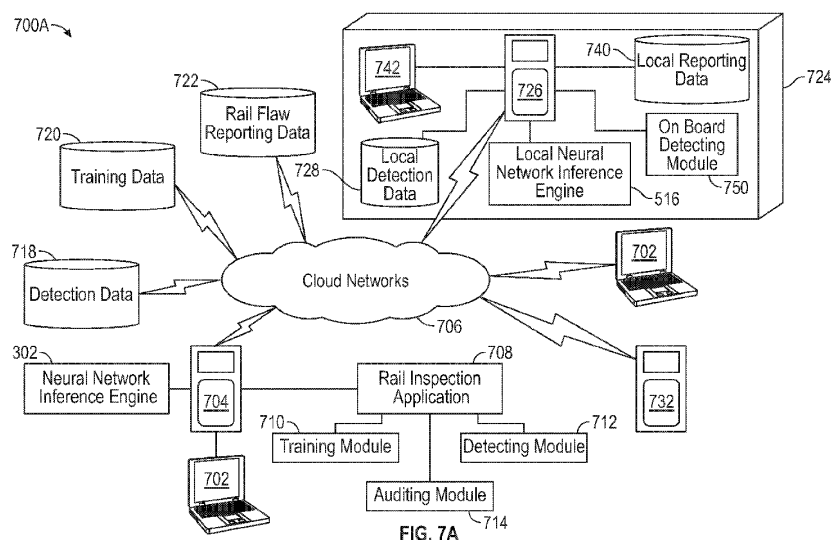


FIG. 7A

(57) **Abstract:** An aspect includes a vehicle that includes rail inspection sensors configured for capturing transducer data describing the rail, and a processor configured for receiving and processing the transducer data in near-real time to determine whether the captured transducer data identifies a suspected rail flaw. The processing includes inputting the captured transducer data to a machine learning system that has been trained to identify patterns in transducer data that indicate rail flaws. The processing also includes receiving an output from the machine learning system, the output indicating whether the captured transducer data identifies a suspected rail flaw. An alert is transmitted to an operator of the vehicle based at least in part on the output indicating that the captured transducer data identifies a suspected rail flaw. The alert includes a location of the suspected rail flaw and instructs the operator to stop the vehicle and to perform a repair action.

[Continued on next page]

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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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