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(54) Title: MIXER WAVEFORM ANALYSIS FOR MONITORING AND CONTROLLING CONCRETE

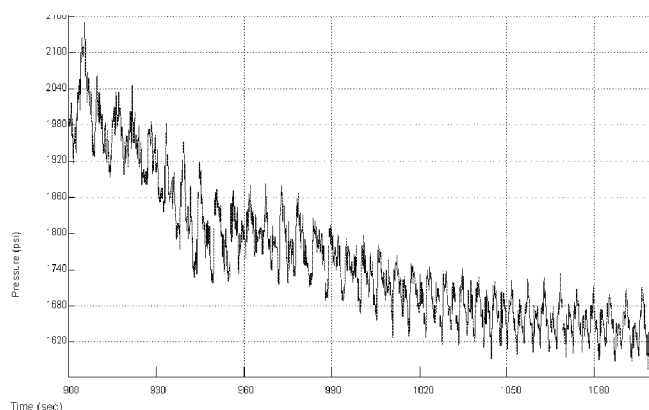


FIG. 5

(57) Abstract: Method and system for motoring and obtaining information about quantity and characteristics of cementitious material in a rotating mixing drum. The present invention involves analysis of a sequence of values corresponding to a waveform reflecting the hydraulic pressure required to turn a concrete mixing drum at successive instances during rotation. Preferred embodiments involve the conversion of this time-domain data into the frequency-domain. Behavior of multiple harmonics can be examined in real time and further information obtained regarding physical properties of the concrete. Rheology or other properties can be adjusted by introducing a liquid into the concrete, based on a comparison between time-domain and/or frequency-domain values derived from a sample concrete in the drum and previously stored time-domain and/or frequency-domain values, which are preferably correlated with physical characteristics of concrete, such as slump, slump flow, load weight, and other factors.