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Canty et al.

(54) **DIRECT LINE SAMPLING AND DILUTION SYSTEM**

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(57) ABSTRACT

A direct line sampling system includes a flow line for a process flow, a diluent flush line for a diluent, and a sampling valve structure disposed in the flow line. The sampling valve structure includes a sampling chamber and has a first position in which the sampling chamber is in communication with the flow line so as to provide a path for the process flow through the sampling chamber. The sampling chamber captures a sample from the process flow when the sampling valve structure switches to a second position in which the sampling chamber is in communication with the diluent flush line. The diluent flushes the sample to a mixing chamber disposed downstream of the diluent flush line where the sample is diluted. An outlet line extends from an outlet of the mixing chamber to an analysis instrument configured to analyze particles in the diluted sample of the process flow.

16 Claims, 6 Drawing Sheets

