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(54) Title: IN-LINE MINI-ENVIRONMENT CONTAMINATION DETECTION AND MONITORING SYSTEM

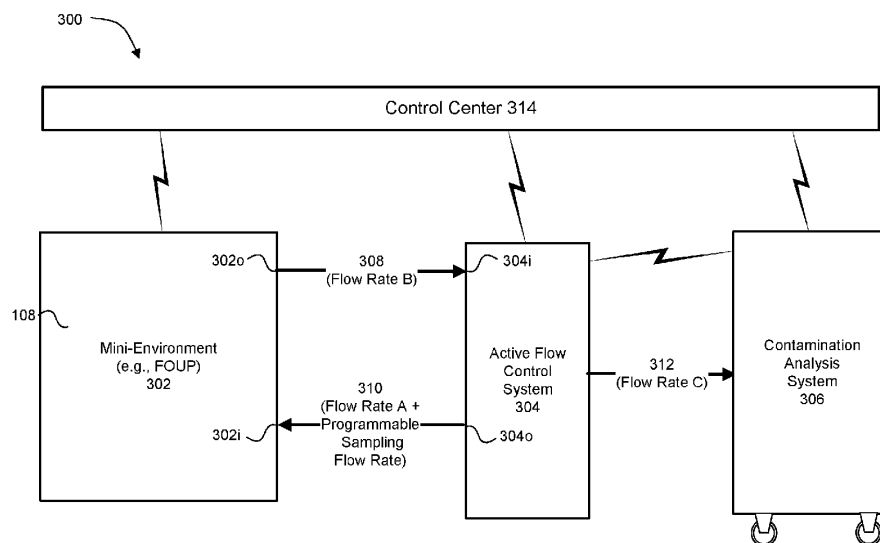


Fig. 3A

(57) **Abstract:** Embodiments are disclosed of an active flow control system including one or more inlets and one or more outlets. A first outlet is configured to be fluidly coupled to an inlet of a mini-environment, and a first is configured to be coupled to an outlet of the mini-environment. The active flow control system includes one or more flow control configurations; each flow control configuration corresponds to a flow control mode. The one or more flow configurations include a configuration corresponding to a sampling mode. The sampling mode includes injecting a neutral fluid from the first outlet into the inlet of the mini-environment, and directing a mixed fluid exiting through the outlet of the mini-environment to the first inlet of the active flow control system, the mixed fluid being a combination of the neutral fluid and the fluid that was in the mini-environment before injecting the neutral fluid into the mini-environment.

[Continued on next page]



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