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(54) **Title:** PERFUSION BIOREACTOR WITH FILTRATION SYSTEMS

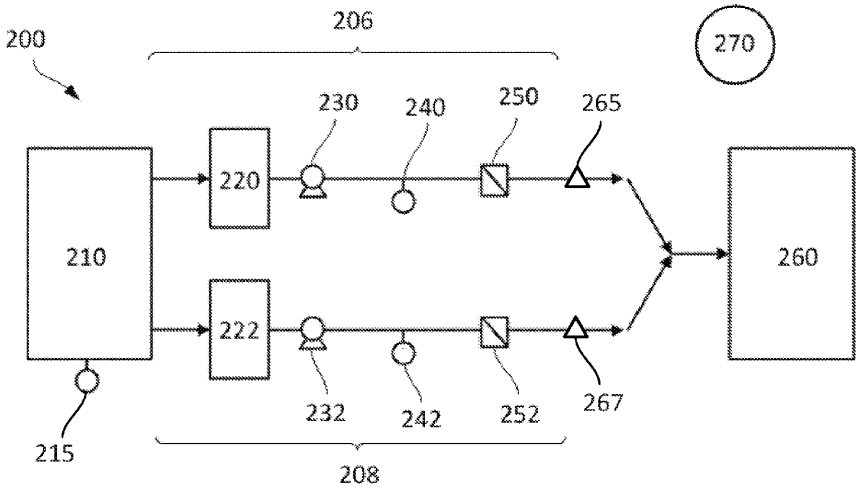


FIG. 2

(57) **Abstract:** The disclosure provides a filtration system for a cell culture apparatus and a method of cell culture. The filtration system comprises a bioreactor vessel and two or more alternating tangential flow (ATF) filters connected in parallel. A failure m either filter is detected by an in-line sensor, and an automated response system functions to sequester the malfunctioning filter by stopping the flow of liquid media through the filter. Media flow through the remaining operable filters can be increased so that the rate of perfusion through the bioreactor remains relatively unchanged. Such a system may prevent issues that arise from ATF filter failures in conventional perfusion bioreactors, thereby improving the long-term viability of cell cultures.

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