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(71) Applicant: **REPLIGEN CORPORATION** [US/US]; 41
Seyon Street, Waltham, Massachusetts 02453 (US).

(72) Inventor: **PAVLIK, Rudolf**; 17 Rolling Lane, Dover,
Massachusetts 02030 (US).

(74) Agent: **KAUSHAL, Dhruv**; Kacvinsky Daisak Blumi
PLLC, 101 Carnegie Center, Suite 106, Princeton, New Jer-
sey 08540 (US).

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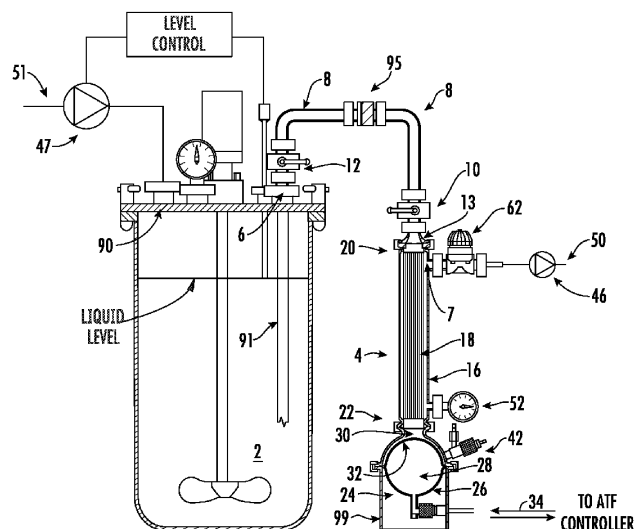


FIG. 1A

(57) Abstract: The present disclosure provides apparatuses and methods that integrate sensors into bioprocessing systems and, advantageously, do not require significant re-engineering of these systems. The disclosure describes an assembly for alternating tangential flow filtration. The assembly also includes a sensor inserted into the first hemisphere of the pump housing via the port. In various embodiments, the port comprises a tri-clover connector, and the sensor is optionally inserted into the port through a plug sized to substantially occlude the port and to place the sensor in contact with a fluid in the pump housing.

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