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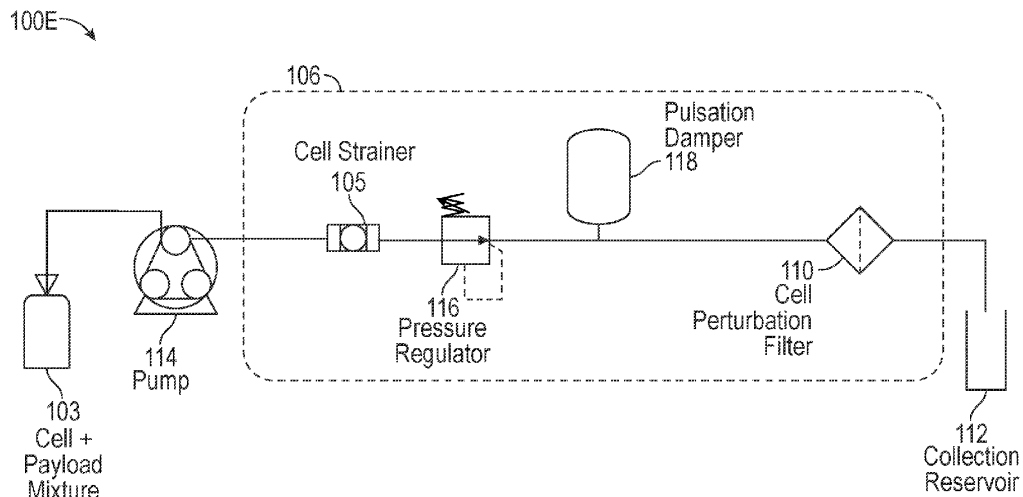


FIG. 1E

(57) Abstract: The present disclosure provides systems, devices, and methods for mechanoporation of cells to facilitate delivery of a pay load into the cells. The mechanoporation systems described herein can simplify cell processing systems by providing a tubing set that is disposable, compatible with existing pumps and other cell processing equipment, and operable at lower pressures constituted by these existing pump systems. The tubing set can mix a cell suspension received from upstream cell processing equipment with a payload optionally contained within the tubing set and can perturb the membranes of the cells by passing the cells through a cell perturbation filter of the tubing set.

[Continued on next page]

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