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(54) Title: OPTIMIZATION OF MOTION PROFILE USING COMPUTATIONAL FLUID DYNAMICS

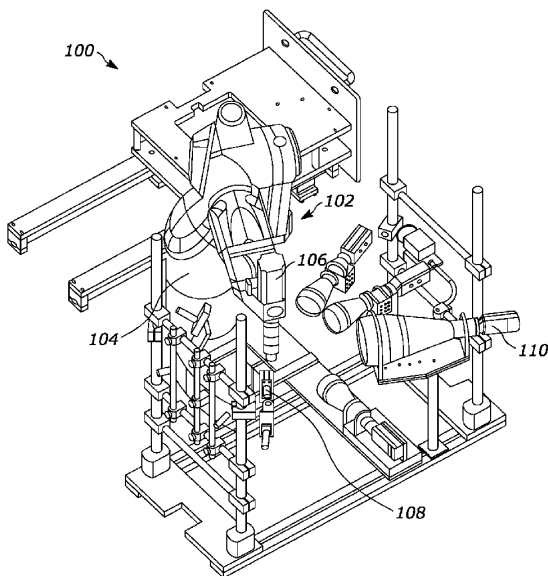


FIG. 1

(57) Abstract: Methods for optimizing a motion profile for agitating a sample in a container and systems implementing the methods are described herein. The methods may include (a) obtaining a motion profile associated with an agitation event of the container; (b) analyzing the motion profile using a computational fluid dynamics (CFD) model to generate one or more performance metrics of the agitation event, wherein generating the performance metrics includes generating a coverage of an inner surface of the container that experienced a threshold amount of wall shear stress; (c) comparing the one or more performance metrics to one or more respective acceptance criteria to determine an acceptability of the motion profile; and (d) based on the comparison, performing one of (i) accepting the motion profile, or (ii) adjusting the motion profile and repeating steps (b)-(d) using the adjusted motion profile.

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