SYSTEM, APPARATUS AND METHOD FOR VACUUM BASED REGULATION OF COMPONENT FLOW AND SINGULATION

ABSTRACT

A vacuum based system for separating components includes a component delivery unit having a feeder track configured to carry components, and a component reception stage configured to receive components from the feeder track. The component delivery unit includes a vacuum assembly configured to apply vacuum pressure(s) or force(s) at a set of feeder track sites to reliably stop the motion of a leading feeder track component and at least decelerate the motion of other components carried by the feeder track, thereby preventing undesired or uncontrolled component output from the feeder track unless the component reception stage is appropriately positioned relative to the feeder track and ready to receive a next component. Vacuum pressures can be applied by way of vacuum elements disposed relative to distinct feeder track sites. In certain embodiments such vacuum pressures can be applied to particular vacuum elements in an independent or configurable manner relative to other vacuum elements.

FIG. 2A