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(54) **MEDICAL ISOTOPE GENERATOR SYSTEMS**

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(58) **Field of Classification Search** ..... 250/432 PD; 423/2, 3, 21.1, 155; 424/1.11; 210/682
See application file for complete search history.

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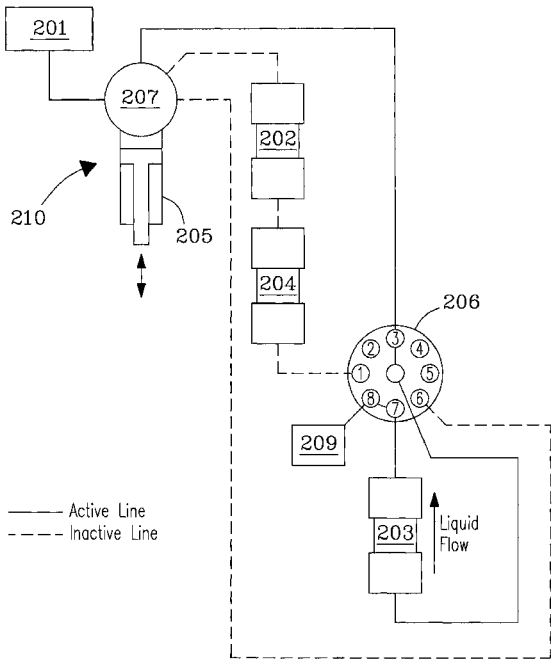
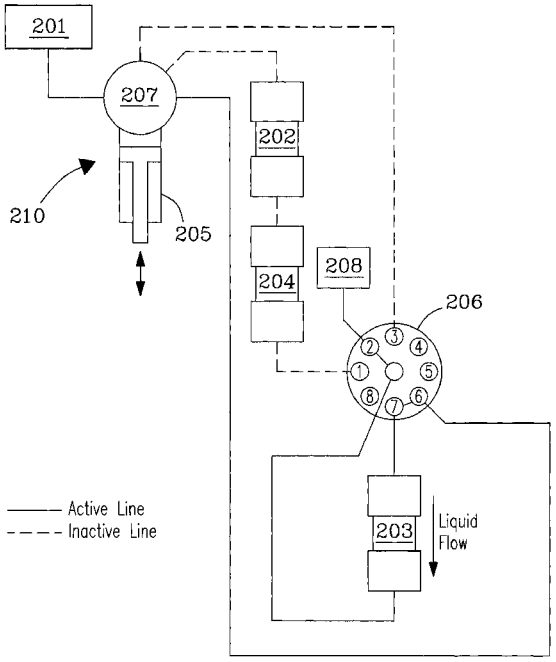
(57) **ABSTRACT**

Medical isotope generator systems are disclosed according to some aspects. In one aspect, a ^{90}Y generator system comprises a generator column, a concentration column, and a flow control system, through which the generator column and the concentration column are in fluid communication. The flow control system provides a plurality of flow configurations for delivering a milking solution to the generator column, the concentration column, or both, and for delivering an eluent solution to the concentration column in either a forward or a reverse flow direction. The generator column can comprise a ^{90}Sr stock adsorbed on a sorbent. The milking solution preferentially elutes ^{90}Y from the generator column. The concentration column comprises a sorbent that captures ^{90}Y from the milking solution without altering the milking solution. The eluent solution elutes ^{90}Y from the concentration column.

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