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- (71) **Applicant (for all designated States except US):** **THERMO FINNIGAN LLC** [US/US]; 355 River Oaks Parkway, San Jose, CA 95134 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **SCHWARTZ, Jae, C.** [US/US]; 6197 Dunn Avenue, San Jose, CA 95123-4827 (US). **SYKA, John, E. P.** [US/US]; 2972 Beaumont Farm Road, Charlottesville, VA 22901 (US). **QUARMBY, Scott, T.** [US/US]; 8405 Laughing Water Lane, Round Rock, TX 78681 (US).
- (74) **Agent:** **KATZ, Charles, B.**; Thermo Fisher Scientific Inc., 355 River Oaks Parkway, San Jose, CA 95134 (US).
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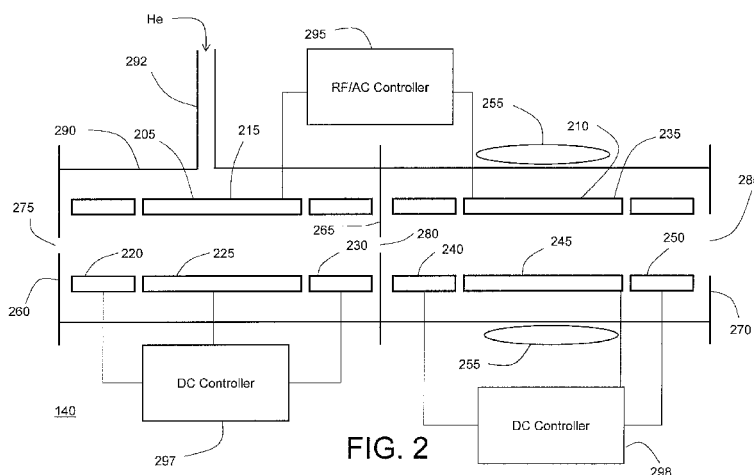
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(54) **Title:** DIFFERENTIAL-PRESSURE DUAL ION TRAP MASS ANALYZER AND METHODS OF USE THEREOF

**FIG. 2**

(57) **Abstract:** A dual ion trap mass analyzer includes adjacently positioned first and second two-dimensional ion traps respectively maintained at relatively high and low pressures. Functions favoring high pressure (cooling and fragmentation) may be performed in the first trap, and functions favoring low pressure (isolation and analytical scanning) may be performed in the second trap. Ions may be transferred between the first and second trap through a plate lens having a small aperture that presents a pumping restriction and allows different pressures to be maintained in the two traps. The differential-pressure environment of the dual ion trap mass analyzer facilitates the use of high-resolution analytical scan modes without sacrificing ion capture and fragmentation efficiencies.